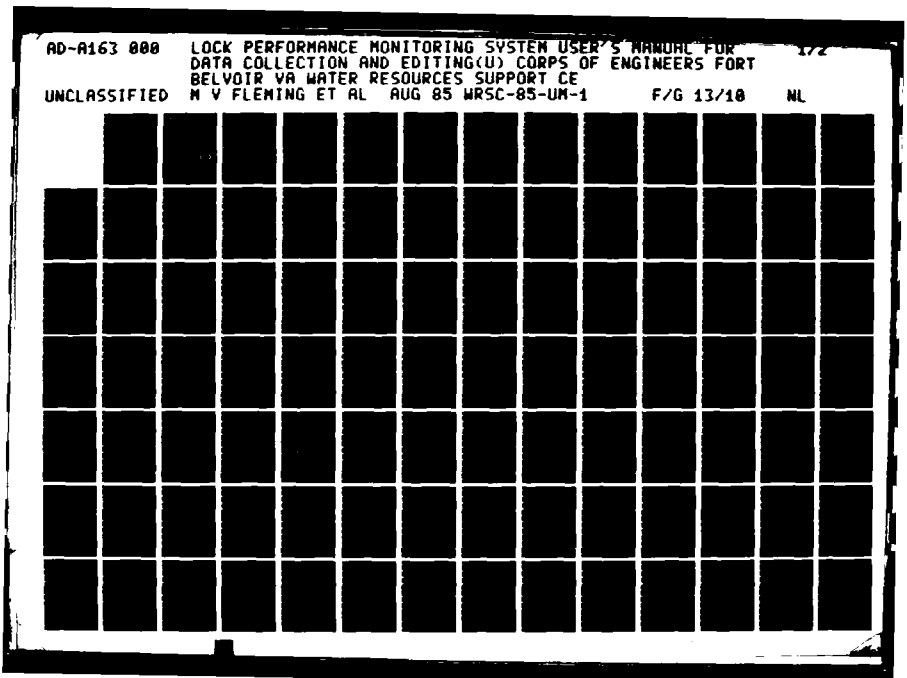
AD-A163 000 LOCK PERFORMANCE MONITORING SYSTEM USER'S MANUAL FOR 1/2
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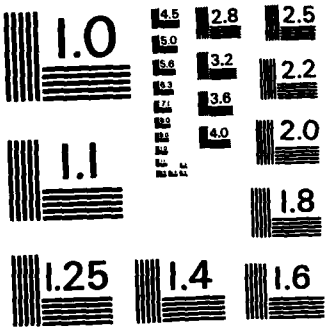

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US Army Corps
of Engineers
Engineer Institute for
Water Resources

Lock Performance Monitoring System

User Manual for Data Collection and Editing

August 1985

User Manual 85-UM-1

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lock statistics	vessel	lock capacity
tows	vessel number	lock process
barges		

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

Lock Performance Monitoring System User's Manual for Data Collection and Editing provides instruction on the collection and editing of lock Performance Monitoring System (PMS) data.

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LOCK PERFORMANCE MONITORING SYSTEM

USER'S MANUAL

FOR

DATA COLLECTION AND EDITING

by

Marilyn V. Fleming
Institute for Water Resources

Donna E. Wood
Engineer Automation Support Activity

and

Robert J. Goodwin
Engineer Automation Support Activity

U.S. Army Engineer
Institute for Water Resources
Casey Building
Fort Belvoir, Virginia 22060-5586

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PREFACE

This report is a product of the Navigation Data Management and Applications Branch of the U.S. Army Engineer Institute for Water Resources (WRSC-IWR). It is intended to provide instruction in the collection and editing of data for the lock Performance Monitoring System (PMS).

The study is managed by Mrs. Marilyn V. Fleming under the supervision of Mr. Francis M. Sharp, Chief of the WRSC-IWR Navigation Data Management and Applications Branch, and Dr. Lloyd G. Antle, Chief of the WRSC-IWR Navigation Division. The Office of the Chief of Engineers (OCE) sponsors are Mr. Henry W. Campbell, Jr., DAEN-CWO-M, and Mr. Robert M. Daniel, DAEN-CWP-D.

Comments and questions can be directed to Frank Sharp (202-355-2240 or FTS 385-2240) or Marilyn Fleming at the same telephone number.

James R. Hanchey

JAMES R. HANCHEY
Director, WRSC-IWR

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LOCK PERFORMANCE MONITORING SYSTEM
USER'S GUIDE

I. Introduction.

The Lock Performance Monitoring System (PMS) is a part of the Inland Navigation Systems Analysis (INSA) program and encompasses the collection, editing, maintenance and analysis of data collected at all Corps-owned and operated locks. The data have been collected since March of 1975 and consist of information describing the traffic through the locks as well as the physical aspects of lockages. → see p 3

A. Background of PMS.

Realizing that individual projects within the inland navigation system impact each other as well as the total U.S. transportation system, the Office of the Chief of Engineers (OCE), in 1970, established an OCE Task Group for Inland Waterways Systems Analysis. The following conclusions were reached by this group: systems analysis of the inland waterway was important to Corps planning, methods and models for such analyses should be developed and uniform and comprehensive data should be collected. These conclusions led to the development of an Inland Navigation Systems Coordination Group in 1973 which resulted in the INSA program. The Performance Monitoring System (PMS) was established to collect and display the requisite data.

B. Overview and Uses of PMS. (Figure 1)

PMS data are collected at the locks, edited by the districts and added to the Corps PMS library monthly. Monthly summary data, lock standards data and detailed lockage and vessel data are created each time the central library is updated. The data may be extracted from the library and processed through locally developed programs, any of the forty standard PMS report programs, the INSA computer models and programs, or may be used as input to special studies. Additionally, the data may be used by operations personnel to monitor the physical performance of their locks and by Corps planners to study or project the characteristics of traffic on specific segments of the waterway and predict the impact of system changes.

C. Hardware and Software Requirements.

The PMS programs are written in ANSI COBOL 5 and were designed to be run on the Control Data Corporation (CDC) NOS system run on Control Data Corporation Cyber 175 hardware. The system makes use of 9 track, 6250 BPI tape drives. Although jobs may be initiated in either batch or interactive modes, they can only be executed in the batch environment. Jobs normally require 120 CP seconds and 100000 words of core to execute. The only output peripheral required is a line printer. The system makes use of no proprietary software, but some tape handling and job control commands are unique to the

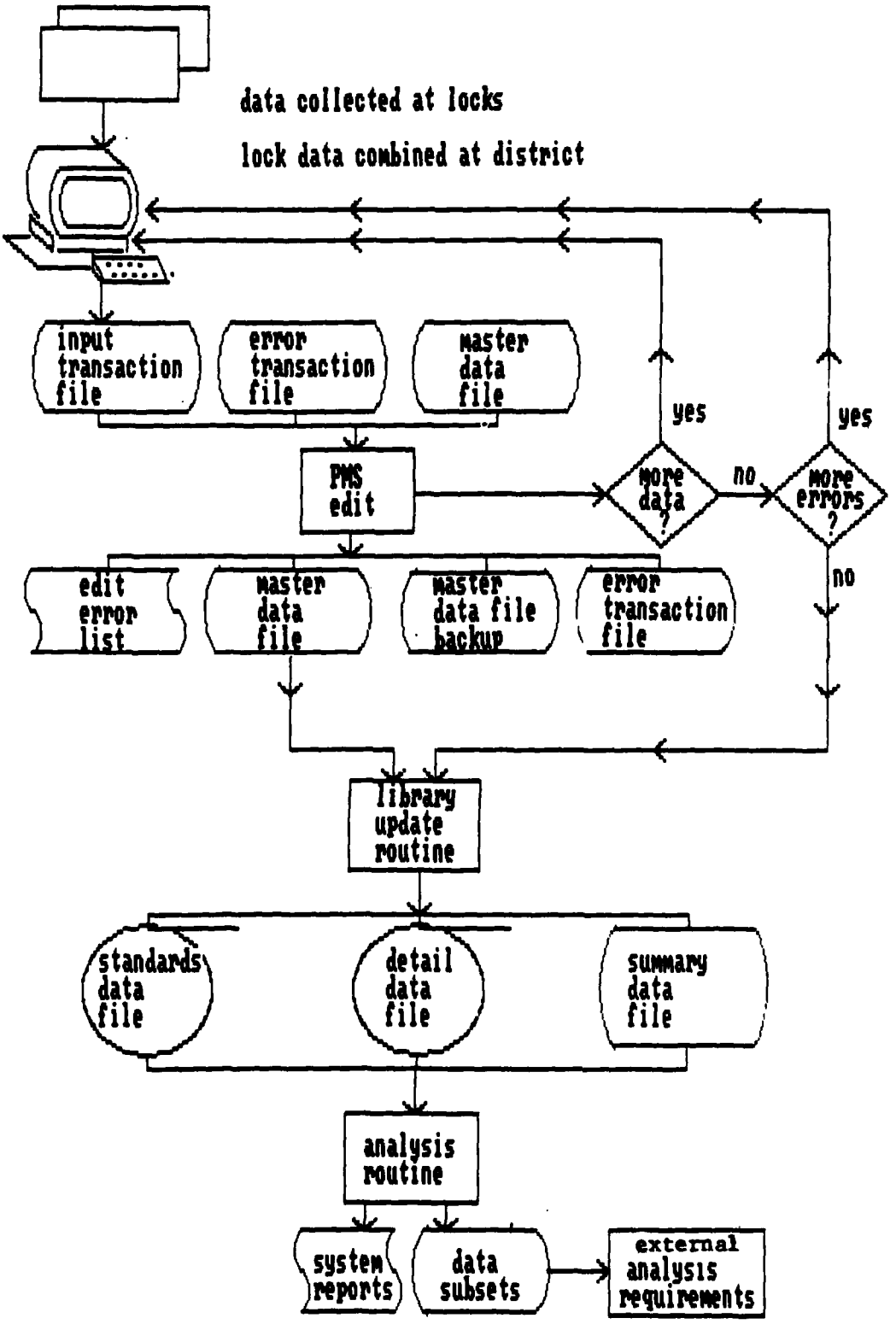

Figure 1 Performance Monitoring System Overview

CDC NOS system. The job set-ups in this document reflect this dependence and are specifically for use on the CDC NOS system.

D. Scope and Intent of Guide.

This User's Guide has been prepared to provide basic instruction for the collection, preparation and analysis of PMS data. Common problems in the recording and editing of data are discussed. The Guide contains formats for data preparation and formats for the final data files as well as descriptions and formats of the various program look-up tables and instructions for processing the PMS reports. The overall structure of the system, it's components and their relation to the system are explained. A system flowchart is contained in Appendix A. The Guide is not intended to provide detailed technical system documentation. Topics such as program algorithms, execution times and listings are not included.

Keywords: tows; barges; waiting; traffic

II Data Collection and Editing.

PMS data are collected at the locks. The district ofice consolidates information from the locks to create a monthly transaction file. These transactions are edited resulting in a monthly master file, a master backup file, and an error transaction file. Errors are identified and corrected by processing new transactions or by correcting and processing the error transaction file. The monthly transaction file and the error transaction file formats are as for the TRANSAC file in Appendix D. The format of the master file and master backup file are as for the MASTER file in Appendix D.

A. Data Collection.

PMS data are collected by lock operators, usually on forms ENG 3102a, 3102b, 3102c and 3102d. There is also a form 3102e which combines 3102a and 3102b. Appendix B contains sample copies of these forms. The forms provide the data elements and their formats. Alternate means of recording and preparing the data are used by some districts, including modified forms and direct data entry into a terminal. Appendix C contains detailed instructions for the completion of these forms.

(1) Shift Log (form ENG 3102a). This form is completed each time there is a shift change at a lock and each time there is a significant change in navigation conditions. It provides shift information and describes weather and navigation conditions.

(2) Lockage Log (form ENG 3102b). This form is completed for vessels transiting the lock. The only exception occurs when light boats or recreational vessels are locked with other vessels; a separate form is not completed for them. Data collected include: vessel name and number, direction of the vessel, number of cuts, lockage and vessel type, entry and exit type, arrival time, lockage time and a description of any factor which may have interfered with the lockage.

(3) Vessel Log (form ENG 3102c). This form is completed for commercial tows and cargo-carrying vessels. It is completed with information supplied by the vessel operator. It contains the vessel name and number, information on assisting vessels, dimensions of the flotilla, number of passengers, barge types, number of barges, the type and number of tons of each commodity and whether or not the vessel has stopped since its last lockage.

(4) Detailed Vessel Log (form ENG 3102d). Under special conditions and only when authorized, this form may be used in place of the Vessel Log to aid in tracking commodity movements when a vessel may take more than one route before reaching or after leaving a lock. In addition to the information on the Vessel Log, this form contains the name and vessel number of light boats locked with the loaded vessel, the identification number of each barge, the origin and destination of commodities carried and whether or not the commodity is hazardous.

B. PMS Edit.

After collection, data are prepard, on disk or cards, from forms 3102a, 3102b and 3102c or 3102d. Shift data, from 3102a, are entered on card type 1; lockage data, from 3102b, on card type 2 and vessel data on card types 3 and 4, 3102c, or 3, 5 and 6, 3102d. Content and format of each card type is described in Appendix D, the TRANSAC file.

The edit program can be used to add new records to the monthly master file or to change or delete existing records. Once a record has been added, it should not be input to the PMSEDT again except as a change or delete transaction. The following paragraphs contain information concerning data preparation, editing and output. The procedures and deck set ups are described in part C.

(1) Adding new records. To add new records, prepare the data in the format described for the TRNSAC file leaving column 80 (transaction code) blank. As long as the sequence number is unique and the lock, chamber and card codes are valid, a new record will be created. Since it is possible to create an entirely new record with just one valid input transaction; type 1, 2, 3 and either 4 or 5 and 6; care should be taken that the sequence numbers for all transaction types in the record match. The data are edited and written onto the master file and onto an error file if errors are found.

(2) Changing data. Data on the district monthly master file can be changed by submitting a transaction containing the proper type, lock, chamber number and sequence number. Column 80 must not be blank. The suggested procedure, with the exception of transaction types 4 or 5, is to enter the type in column 80. For card type 4, column 80 should contain the number of the type 4 card on which the data to be corrected reside; a one for barge sets 1-5, a two for barge sets 6-10, and a three, four or five for sets 11-15, 16-20, and 21-22 respectively. The same procedure is used for transaction type 5, except there may be up to six type 5 transactions with the following barge set ranges:

(a) 1-4, put a one in column 80
(b) 5-8, put a two in column 80
(c) 9-12, put a three in column 80
(d) 13-16, put a four in column 80
(e) 17-20, put a five in column 80
(f) 21-22, put a six in column 80

Once the record and transaction to be corrected have been identified, enter the corrected information in the appropriate fields. Fields which do not require changes should be left blank. Unless the entire transaction is blank, fields left blank will remain unchanged.

(3) Deleting data. Deletions may be performed using transaction types 2 and 4 or 5. Type 2 is used to delete an entire record while card type 4 or 5 is used to delete barge sets from the record.

To delete the record, type 2 should be prepared with the proper identifying information in columns 1-8 and a 2 in column 80. Columns 9-79 should be blank.

To delete barge sets, prepare the type 4 or 5 with the proper identifying information in columns 1-8 and the proper code in column 80 (see part (2)). Zero fill all fields, barge and commodity, pertaining to the barge sets to be deleted.

(4) Suppressing error messages. The PMS edit will write error messages for conditions which suggest a probable error condition. In some circumstances, these conditions may not actually be in error. If the PMSEDIT is creating error records and messages for a condition that is not in error, identify the problem card as for a change transaction and asterisk fill the appropriate field to suppress its being edited. Some data is calculated from information supplied on the transaction records. These are called calculated variables and error messages pertaining to calculated variables cannot be suppressed. A field by field description of the edits, including an identification of those which can be suppressed, can be found in Appendix E.

(5) Lock Parameter File. The parameter file, PARM001, contains lock identifying, physical characteristic and operating characteristic data for each lock. All variables on the file and the record layout are listed in Appendix D. This information was supplied by the districts and is used by the PMS edit to check for unreasonable shift and lockage data. The errors which result from a disagreement between the data on the parameter file and monthly transactions are identified in Appendix E. If errors are being found in these fields, either data are being entered wrong or the parameter file requires updating. To get a list of the current parameters for a lock, or to make changes to parameters, contact the PMS Coordinator at the Engineer Automation Support Activity.

(6) Data files. The PMSEDIT creates three output data files: the error file, the master file and the master backup file.

(a) The error file contains all records which apparently contain errors. Only key information and the questionable fields are written. The file is named by combining the district EROC code (see Appendix F), the year and month of the data and the letter "E". For example, a December 1980 run of PMSEDIT for the New Orleans District would create a file named "B28012E." The error file can be modified to create change, delete or add transactions as described in parts (1) through (3) and saved as input for subsequent runs to update the master file. Position 80 already contains the proper change or delete transaction code. PMSEDIT will try to use this file for input unless specifically directed not to.

(b) The master file is created after the first run of PMSEDIT for a given month. Records may be added, deleted or changed as described previously. The naming convention for this file is the same as described for the error file except that the last character is an "M." The format of the master file can be found in Appendix D.

(c) The master backup file is the version of the master file prior to its last update. This file is named the same as the error and master file except that the last character is a "B."

(7) Looking at data prior to library update. Because data are essentially permanent once they have been added to the master file, utility programs to dump selected records and to allow the processing of PMS reports, before the data are added to the library, have been made available.

The dump program (PP460) provides a formatted dump of data on the master file by selected lock, chamber and record number. Individual records or ranges of records may be specified; figure 2 is an example of this.

It is also useful to run some of the PMS reports, to be examined by district personnel so that potential reporting problems, not recognized by the edit as an error, can be identified before the library is updated. The procedure for doing this will be explained in the section on editing PMS data.

(8) Updating the central library. Once all data for the month have been processed and are as error-free as possible, they are added to the PMS central library. Remember, once data have been put on the library, it is almost impossible to correct them, so be sure data are as error-free as possible before sending them.

C. Procedure for editing and updating data files. (See Appendix G for control and option card formats).

(1) Assemble job control (JCL) cards or create a procedure file on disk. Table 1 is a sample edit run procedure.

(2) Make sure "current month" card is set to the date of the data being submitted.

RECORD TYPE	2	2	2	2	2	2	2	2	2	2	2	2	2
END CHAMBER FLAG													
END LOCKAGE FLAG													
LOCK	01	01	01	01	01	01	01	01	01	01	01	01	01
CHAMBER	1	1	1	1	1	1	1	1	1	1	1	1	1
SEQUENCE	0002	0004	0005	0006	0008	0010	0012	0013	0014	0016	0017	0018	0019
RIVER CODE	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN
DISTRICT CODE	G4	G4	G4	G4	G4	G4	G4	G4	G4	G4	G4	G4	G4
MONTH SHIFT	06	06	06	06	06	06	06	06	06	06	06	06	06
DAY SHIFT	01	01	01	01	01	02	02	02	02	02	02	02	02
YEAR SHIFT	85	85	85	85	85	85	85	85	85	85	85	85	85
BEGIN SHIFT	0001	0801	0801	0801	1601	0001	0801	0801	0801	1601	1601	1601	1601
TIME ZONE	6	6	6	6	6	6	6	6	6	6	6	6	6
SHIFT NUMBER	3	1	1	1	2	3	1	1	1	2	2	2	2
NO OF PERSONS	01	01	01	01	01	01	01	01	01	01	01	01	01
UPPER GUAGE	37.76	38.61	38.61	38.61	39.08	38.48	38.78	38.78	38.78	37.58	37.58	37.58	37.58
LOWER GUAGE	46.73	47.62	47.62	47.62	46.32	46.34	46.15	46.15	46.15	46.36	46.36	46.36	46.36
WIND VELOSITY	6	6	6	6	5	6	6	6	6	6	6	6	6
WIND DIRECTION	1	1	1	1	1	1	1	1	1	1	1	1	1
UP CURRENT	0	0	0	0	0	0	0	0	0	0	0	0	0
DOWN CURRENT	0	0	0	0	0	0	0	0	0	0	0	0	0
WEATHER COND	0	0	0	0	0	0	0	0	0	0	0	0	0
WEATHER SEVERITY	0	0	0	0	0	0	0	0	0	0	0	0	0
SURF CONDITION	0	0	0	0	0	0	0	0	0	0	0	0	0
SURF SEVERITY	0	0	0	0	0	0	0	0	0	0	0	0	0
VESSEL NUMBER	0553843	0000000	0628951	0000000	0265175	0503704	0553843	0000000	0000000	0000000	0000000	0000000	0000000
VESSEL HP	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000
VESSEL NAME													
VESSEL OWNER													
DIRECTION	2	1	1	2	2	1	1	1	1	2	1	2	1
NO OF CUTS	01	01	01	01	01	01	01	01	01	01	01	01	01
LOCKAGE TYPE	01	10	10	10	01	01	01	10	10	10	10	10	10
VESSEL TYPE	T	R	P	R	U	U	T	R	R	R	R	R	R
NO LIGHT VESSELS	00	00	00	00	00	00	00	00	00	00	00	00	00
NO RECREATIONAL	00	01	00	01	00	00	00	01	01	01	03	01	00
NO OF PASSENGERS	000	008	000	008	000	000	000	009	006	008	021	008	000
ENTRY TYPE	3	1	3	2	3	1	3	3	3	2	2	1	2
EXIT TYPE	1	3	2	3	1	3	3	3	2	2	1	2	1
MONTH ARRIVED	06	06	06	06	06	06	06	06	06	06	06	06	06
DAY ARRIVED	01	01	01	01	01	02	02	02	02	02	02	02	02
TIME ARRIVED	0700	0930	1040	1113	2318	0027	1300	1358	1547	1642	1730	1903	1942
SOL	0703	0930	1043	1113	2320	0030	1303	1358	1547	1642	1730	1903	1942
BOS	0706	0933	1047	1115	2322	0033	1306	1400	1551	1645	1732	1907	1944
EOE	0709	0935	1050	1118	2324	0036	1310	1406	1610	1709	1812	1915	1946
SOE	0732	0953	1110	1133	2347	0057	1333	1429	1630	1728	1832	1940	2005
EOL	0735	0955	1113	1135	2351	0100	1337	1431	1642	1730	1836	1942	2008
SOL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
BOS	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
EOE	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SOE	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
EOL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IDLE TIME	00419	00115	00045	00000	00703	00036	00720	00021	00076	00000	00000	00027	00000
WAIT TIME	00003	00000	00003	00000	00002	00003	00003	00000	00000	00000	00000	00000	00000

Figure 2 Sample Data Dump Output

CHAMBERING TIME1	023	018	020	015	023	021	023	023	020	019	020	025	019
EXIT TIME 1	003	002	003	002	004	003	004	002	012	002	004	002	003
APPROACH TIME 2	000	000	000	000	000	000	000	000	000	000	000	000	000
ENTRY TIME 2	000	000	000	000	000	000	000	000	000	000	000	000	000
CHAMBERING TIME2	000	000	000	000	000	000	000	000	000	000	000	000	000
EXIT TIME 2	000	000	000	000	000	000	000	000	000	000	000	000	000
TURN BACK TIME	003	000	003	000	002	000	003	000	000	000	000	000	000
NO TRNBK TOTAL	01	00	01	00	01	00	01	01	01	00	00	00	00
TOTAL TURNBACK	01	00	01	00	01	00	01	01	01	00	00	00	00
NO EMPTY TRNBACK	00	00	00	00	00	00	00	00	00	00	00	00	00
LENGTH OF STALL	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000
BEGIN STL MON	00	00	00	00	00	00	00	00	00	00	00	00	00
BEGIN STL DAY	00	00	00	00	00	00	00	00	00	00	00	00	00
BEGIN STL TIME	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
END STALL MON	00	00	00	00	00	00	00	00	00	00	00	00	00
END STALL DAY	00	00	00	00	00	00	00	00	00	00	00	00	00
END STALL TIME	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
STALL CODE											K		
TOW LENGTH	0563	0000	0000	0000	0000	0000	0516	0000	0000	0000	0000	0000	0000
TOW WIDTH	084	000	000	000	000	000	084	000	000	000	000	000	000
DRAFT FEET	09	00	00	00	00	00	02	00	00	00	00	00	00
DRAFT IN	00	00	00	00	00	00	06	00	00	00	00	00	00
NO LOADED BARGES	03	00	00	00	00	00	00	00	00	00	00	00	00
NO EMPTY BARGES	00	00	00	00	00	00	04	00	00	00	00	00	00
SPAGE CODE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
SPEC ASST CODE1	0		0		0	0	0						
SPEC ASST CODE2													
PRIMARY VSL NO	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000
NO OF PASSENGERS	000	000	055	000	001	000	000	000	000	000	000	000	000
NO OF BARGE SETS	03	00	00	00	01	01	04	00	00	00	00	00	00
NO OF VSL SETS	00	00	00	00	00	00	00	00	00	00	00	00	00
TOTAL TONNAGE	003365	000000	000000	000000	000009	000000	000000	000000	000000	000000	000000	000000	000000
ASST VSL NO 1													
ASST VSL NO 2													
ASST VSL NO 3													
ASST VSL NO 4													
ASST VSL NO 5													
ASST VSL NO 6													
KART	00	00	00	00	00	00	00	00	00	00	00	00	00
VESSEL OPERATOR	000009	000007	000010	000007	000008	000009	000011	000010	000035	000029	000046	000014	000007
LOCK OPERATOR	000026	000018	000023	000015	000025	000021	000026	000023	000020	000019	000020	000025	000019
VESSEL LOG TYPE	L	L	L	L	L	L	L	L	L	L	L	L	L
SHIFT LOG IND													
TOT BARGE SETS	000003	000000	000000	000000	000001	000001	000004	000000	000000	000000	000000	000000	000000
TYP / COM / HAZ	Z 82 0				J 70 0	J 01 0	I 01 1						
BARGE NUM	0000001				0000001	0000001	0000001						
TONS	01375				00009	00000	00000						
TYP / COM / HAZ	I 82 1						I 01 1						
BARGE NUM	0000001						0000001						
TONS	01250						00000						
TYP / COM / HAZ	Z 93 0						Z 01 0						
BARGE NUM	0000001						0000001						
TONS	00740						00000						
TYP / COM / HAZ							Z 01 0						
BARGE NUM							0000001						

Figure 2 (Continued)

00000

TONS
TYP / COM / HAZ
BARGE NUM
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BARGE NUM
TONS

Figure 2 (Continued)

RECORD TYPE	2	2	2	2	2	2	2	2	2	2	2	2	2
END CHAMBER FLAG													
END LOCKAGE FLAG													
LOCK	01	01	01	01	01	01	01	01	01	01	01	01	01
CHAMBER	1	1	1	1	1	1	1	1	1	1	1	1	1
SEQUENCE	0020	0021	0023	0026	0027	0029	0031	0033	0037	0039	0040	0042	0043
RIVER CODE	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN
DISTRICT CODE	G4	G4	G4	G4	G4	G4	G4	G4	G4	G4	G4	G4	G4
MONTH SHIFT	06	06	06	06	06	06	06	06	06	06	06	06	06
DAY SHIFT	02	02	03	03	03	04	04	04	05	06	06	06	06
YEAR SHIFT	85	85	85	85	85	85	85	85	85	85	85	85	85
BEGIN SHIFT	1601	1601	0001	1601	1601	0001	0801	1601	1601	0001	0001	0801	0801
TIME ZONE	6	6	6	6	6	6	6	6	6	6	6	6	6
SHIFT NUMBER	2	2	3	2	2	3	1	2	2	3	3	1	1
NO OF PERSONS	01	01	01	01	01	01	02	01	01	01	01	03	03
UPPER GUAGE	37.58	37.58	37.52	40.06	40.06	38.94	38.68	38.89	38.15	38.07	38.07	38.29	38.29
LOWER GUAGE	46.36	46.36	42.30	45.42	45.42	46.27	46.36	46.19	46.64	43.17	43.17	46.64	46.64
WIND VELOSITY	6	6	3	7	7	0	6	7	6	7	7	2	2
WIND DIRECTION	1	1	1	1	1	0	1	1	1	1	1	1	1
UP CURRENT	0	0	0	0	0	0	0	0	0	0	0	0	0
DOWN CURRENT	0	0	0	0	0	0	0	0	0	0	0	0	0
WEATHER COND	0	0	0	0	0	0	0	0	0	0	0	2	2
WEATHER SEVERITY	0	0	0	0	0	0	0	0	0	0	0	1	1
SURF CONDITION	0	0	0	0	0	0	0	0	0	0	0	0	0
SURF SEVERITY	0	0	0	0	0	0	0	0	0	0	0	0	0
VESSEL NUMBER	0000000	0000000	0628951	0000000	0503704	0265175	0553843	0553843	0265175	0277141	0277141	0503704	0553843
VESSEL HP	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000
VESSEL NAME													
VESSEL OWNER													
DIRECTION	2	2	2	2	2	1	2	1	2	1	2	1	2
NO OF CUTS	01	01	01	01	01	01	01	01	01	01	01	01	01
LOCKAGE TYPE	10	10	10	10	01	01	01	01	01	01	10	01	01
VESSEL TYPE	R	R	P	R	U	U	T	T	U	T	L	U	T
NO LIGHT VESSELS	00	00	00	00	00	00	00	00	00	00	00	00	00
NO RECREATIONAL	00	03	00	00	00	00	00	00	00	00	00	00	00
NO OF PASSENGERS	009	018	000	002	000	000	000	000	000	000	000	000	000
ENTRY TYPE	1	3	3	3	3	1	1	1	1	1	1	1	1
EXIT TYPE	3	3	3	3	1	1	1	1	1	1	1	1	1
MONTH ARRIVED	06	06	06	06	06	06	06	06	06	06	06	06	06
DAY ARRIVED	02	02	03	03	03	04	04	04	05	06	06	06	06
TIME ARRIVED	2030	2113	0728	1620	2139	0106	1258	2037	2304	0038	0134	0932	1020
SOL	2034	2115	0731	1620	2142	0109	1301	2040	2307	0041	0136	0935	1023
BOS	2037	2118	0734	1624	2145	0112	1304	2043	2310	0044	0138	0938	1027
EOE	2039	2121	0738	1627	2148	0115	1307	2046	2313	0047	0140	0941	1037
SOE	2102	2144	0759	1648	2213	0136	1337	2108	2336	0108	0201	1000	1058
EOL	2105	2148	0803	1650	2218	0140	1340	2113	2341	0111	0204	1003	1103
SOL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
BOS	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
EOE	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SOE	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
EOL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IDLE TIME	00022	00008	00580	00497	00289	00168	00678	00417	01551	00057	00023	00448	00017
WAIT TIME	00004	00002	00003	00000	00003	00003	00003	00003	00003	00003	00002	00003	00003
TIME BETWEEN CUT	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000
APPROACH TIME 1	003	003	003	004	003	003	003	003	003	003	002	003	004
ENTRY TIME 1	002	003	004	003	003	003	003	003	003	003	002	003	010

Figure 2 (Continued)

CHAMBERING TIME1	023	023	021	021	025	021	030	022	023	021	021	019	021
EXIT TIME 1	003	004	004	002	005	004	003	005	005	003	003	003	005
APPROACH TIME 2	000	000	000	000	000	000	000	000	000	000	000	000	000
ENTRY TIME 2	000	000	000	000	000	000	000	000	000	000	000	000	000
CHAMBERING TIME2	000	000	000	000	000	000	000	000	000	000	000	000	000
EXIT TIME 2	000	000	000	000	000	000	000	000	000	000	000	000	000
TURN BACK TIME	000	002	003	000	003	000	000	000	000	000	000	000	000
NO TRNBK TOTAL	00	01	01	01	01	00	00	00	00	00	00	00	00
TOTAL TURNBACK	00	01	01	01	01	00	00	00	00	00	00	00	00
NO EMPTY TRNBACK	00	00	00	00	00	00	00	00	00	00	00	00	00
LENGTH OF STALL	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000
BEGIN STL MON	00	00	00	00	00	00	00	00	00	00	00	00	00
BEGIN STL DAY	00	00	00	00	00	00	00	00	00	00	00	00	00
BEGIN STL TIME	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
END STALL MON	00	00	00	00	00	00	00	00	00	00	00	00	00
END STALL DAY	00	00	00	00	00	00	00	00	00	00	00	00	00
END STALL TIME	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
STALL CODE													
TOW LENGTH	0000	0000	0000	0000	0000	0000	0608	0484	0000	0502	0000	0000	0595
TOW WIDTH	000	000	000	000	000	000	084	084	000	084	000	000	084
DRAFT FEET	00	00	00	00	00	00	13	09	00	02	00	00	13
DRAFT IN	00	00	00	00	00	00	03	06	00	06	00	00	06
NO LOADED BARGES	00	00	00	00	00	00	05	01	00	00	00	00	03
NO EMPTY BARGES	00	00	00	00	00	00	00	02	00	03	00	00	00
SPAGE CODE	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	Y	Y
SPEC ASST CODE1			0		0	0	0	0	0	0	0	0	0
SPEC ASST CODE2													
PRIMARY VSL NO	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000	0000000
NO OF PASSENGERS	000	000	055	000	000	001	000	000	001	000	000	000	000
NO OF BARGE SETS	00	00	00	00	01	01	05	03	01	03	00	01	03
NO OF VSL SETS	00	00	00	00	00	00	00	00	00	00	00	00	00
TOTAL TONNAGE	000000	000000	000000	000000	000006	000000	010112	001970	000004	000000	000000	000000	009680
ASST VSL NO 1													
ASST VSL NO 2													
ASST VSL NO 3													
ASST VSL NO 4													
ASST VSL NO 5													
ASST VSL NO 6													
KART	00	00	00	00	00	00	00	00	00	00	00	00	00
VESSEL OPERATOR	000008	000010	000011	000009	000011	000010	000009	000011	000011	000009	000007	000009	000019
LOCK OPERATOR	000023	000025	000024	000021	000028	000021	000030	000022	000023	000021	000021	000019	000021
VESSEL LOG TYPE	L	L	L	L	L	L	L	L	L	L	L	L	L
SHIFT LOG IND													
TOT BARGE SETS	000000	000000	000000	000000	000001	000001	000005	000003	000001	000003	000000	000001	000003
TYP / COM / HAZ					J 70 0	J 01 0	I 82 1	I 24 1	J 70 0	Z 01 0		J 01 0	I 82 1
BARGE NUM					0000001	0000001	0000001	0000001	0000001	0000001		0000001	0000001
TONS					00006	00000	02546	01970	00004	00000		00000	03180
TYP / COM / HAZ							Z 93 0	Z 01 0		Z 01 0			Z 82 0
BARGE NUM							0000001	0000001		0000001			0000001
TONS							00756	00000		00000			03000
TYP / COM / HAZ							Z 82 0	Z 01 0		I 01 1			I 82 1
BARGE NUM							0000001	0000001		0000001			0000001
TONS							02975	00000		00000			03500
TYP / COM / HAZ							I 82 1						
BARGE NUM							0000001						

Figure 2 (Continued)

```
TONS
TYP / COM / HAZ
BARGE NUM
TONS
TYP / COM / HAZ
BARGE NUM
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BARGE NUM
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TYP / COM / HAZ
BARGE NUM
TONS
```

```
01433
 Z 98 0
0000001
02400
```

Figure 2 (Continued)

RECORD TYPE	2	2	2	2	2	2	2	2	2	2	2	2	2
END CHAMBER FLAG													
END LOCKAGE FLAG													
LOCK	01	01	01	01	01	01	01	01	01	01	01	01	01
CHAMBER	1	1	1	1	1	1	1	1	1	1	1	1	1
SEQUENCE	0044	0046	0049	0051	0052	0054	0055	0057	0058	0059	0060	0061	0062
RIVER CODE	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN	SN
DISTRICT CODE	G4	G4	G4	G4	G4	G4	G4	G4	G4	G4	G4	G4	G4
MONTH SHIFT	06	06	06	06	06	06	06	06	06	06	06	06	06
DAY SHIFT	06	06	07	07	07	08	08	08	08	08	08	08	08
YEAR SHIFT	85	85	85	85	85	85	85	85	85	85	85	85	85
BEGIN SHIFT	0801	1601	0801	1601	1601	0001	0001	0801	0801	0801	0801	0801	0801
TIME ZONE	6	6	6	6	6	6	6	6	6	6	6	6	6
SHIFT NUMBER	1	2	1	2	2	3	3	1	1	1	1	1	1
NO OF PERSONS	03	01	01	01	01	01	01	01	01	01	01	01	01
UPPER GUAGE	38.29	38.73	38.65	39.02	39.02	39.50	39.50	39.13	39.13	39.13	39.13	39.13	39.13
LOWER GUAGE	46.64	46.58	46.82	46.69	46.69	47.46	47.46	46.89	46.89	46.89	46.89	46.89	46.89
WIND VELOSITY	2	3	6	6	6	6	6	6	6	6	6	6	6
WIND DIRECTION	1	1	1	3	3	1	:	1	1	1	1	1	1
UP CURRENT	0	0	0	0	0	0	0	0	0	0	0	0	0
DOWN CURRENT	0	0	0	0	0	0	0	0	0	0	0	0	0
WEATHER COND	2	0	0	0	0	0	0	0	0	0	0	0	0
WEATHER SEVERITY	1	0	0	0	0	0	0	0	0	0	0	0	0
SURF CONDITION	0	0	0	0	0	0	0	0	0	0	0	0	0
SURF SEVERITY	0	0	0	0	0	0	0	0	0	0	0	0	0
VESSEL NUMBER	0649705	0553843	0628951	0000000	0503704	0265175	0649705	0000000	0000000	0000000	0553843	0000000	0000000
VESSEL HP	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000
VESSEL NAME													
VESSEL OWNER													
DIRECTION	1	1	1	2	2	1	2	1	1	1	2	1	2
NO OF CUTS	01	01	01	01	01	01	01	01	01	01	01	01	01
LOCKAGE TYPE	01	01	10	10	01	01	01	10	10	10	01	10	10
VESSEL TYPE	T	T	P	R	U	U	T	R	R	R	T	R	R
NO LIGHT VESSELS	00	00	00	00	00	00	00	00	00	00	00	00	00
NO RECREATIONAL	00	00	01	00	00	00	00	00	00	05	00	00	01
NO OF PASSENGERS	000	000	000	007	000	000	000	000	000	000	000	000	000
ENTRY TYPE	1	3	3	1	3	1	1	1	3	3	1	1	2
EXIT TYPE	3	3	1	3	1	1	1	3	3	1	1	2	2
MONTH ARRIVED	06	06	06	06	06	06	06	06	06	06	06	06	06
DAY ARRIVED	06	06	07	07	07	08	08	08	08	08	08	08	08
TIME ARRIVED	1237	1703	1134	1658	2148	0322	0645	1107	1225	1328	1431	1513	1538
SOL	1240	1707	1136	1706	2151	0325	0648	1107	1225	1328	1434	1513	1538
BOS	1243	1710	1138	1709	2154	0328	0651	1110	1228	1330	1437	1516	1540
EOE	1248	1713	1140	1712	2157	0331	0654	1113	1230	1332	1440	1519	1542
SOE	1308	1740	1202	1735	2220	0352	0722	1128	1253	1352	1504	1536	1601
EOL	1313	1745	1205	1740	2223	0355	0725	1130	1255	1355	1507	1539	1603
SOL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
BOS	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
EOE	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
SOE	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
EOL	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
IDLE TIME	00094	00230	01069	00293	00248	00299	00170	00222	00055	00033	00036	00006	00000
WAIT TIME	00003	00004	00002	00008	00003	00003	00003	00000	00000	00000	00003	00000	00000
TIME BETWEEN CUT	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000	00000
APPROACH TIME 1	003	003	002	003	003	003	003	003	003	002	003	003	002
ENTRY TIME 1	005	003	002	003	003	003	003	003	002	002	003	003	002

Figure 2 (Continued)

TABLE 1

Sample Edit Runs

All statements begin in card column or character position 1.

Sample 1
Starting a new month

```
/JOB[4]
PMSJOB,CM90000,P3,T0120.
USER,XXXXXX,YYYYYY.JOE PMS/Phone/Organization
CHARGE,CHGNO,PROJECT.
GET,GENFILE/UN=CEW2PD.
GENFILE.
SKIP,LBL1.
EXIT.
ENDIF,LBL1.
DAYFILE,GENDAY.
REPLACE,GENDAY.
end of record indicator
USER,ZZZZZZ,PPPPPP.JOE PMS/Phone/Organization
CHARGE,CHGNO,PROJECT.
CURRENT MONTH IS MOYY[2]
DISTRICT DC district name[1]
RUN PROGRAM 501P5P50 VERSION A
GIVE LIST OF ALL INPUT INPUT CARDS SUBMITTED IN THIS UPDATE
RUN STACK WITH PRIORITY N
DIRECT OUTPUT TO OUR BULK TERMINAL (COPE ETC) USER ID:CEDCRJ[1]
end of record indicator

enter transaction cards here

end of file indicator
```

---

[1]Change DC to appropriate district code.
[2]Change MO to appropriate month, YY to appropriate year.
[3]If all new transactions are not on cards, replace FFFFFF with appropriate file name.
[4]Optional depending on end of record indicator used. Manual insertion of /EOR requires /JOB at beginning of file. Otherwise, use 7/8/9 multipunch or XEDIT "WEOR."

Table 1 Continued

Sample .2

Updating Existing Monthly Master

```
/JOB[4]
PMSJOB,CM90000,P3,T0120.
USER,XXXXXX,YYYYYY.JOE PMS/Phone/Organization
CHARGE,CHGNO,PROJECT.
GET,GENFILE/UN=CEW2PD.
GENFILE.
SKIP,LBL1.
EXIT.
ENDIF,LBL1.
DAYFILE,GENDAY.
REPLACE,GENDAY.
end of record indicator
USER,ZZZZZZ,PPPPPP.JOE PMS/Phone/Organization.
CHARGE,CHGNO,PROJECT.[2]
CURRENT MONTH IS MOYY    [1]
DISTRICT DC district name
RUN PROGRAM 501P5P50 VERSION A
GIVE LIST OF ALL INPUT CARDS SUBMITTED IN THIS UPDATE
ADDITIONAL TRANSACTIONS ARE LOCATED IN FILE FFFFFF
RUN STACK WITH PRIORITY N                                    [1]
DIRECT OUTPUT TO OUR BULK TERMINAL (COPE ETC) USER ID:CEDCRJ
end of record indicator

Transaction cards (if all transactions are not on the corrected error file or
file FFFFFF)

end of information indicator
```

---

[1]Change DC to appropriate district code.
[2]Change MO to appropriate month, YY to appropriate year.
[3]If all new transactions are not on cards, replace FFFFFF with appropriate file name.
[4]Optional depending on end of record indicator used. Manual insertion of /EOR requires /JOB at beginning of file. Otherwise, use 7/8/9 multipunch or XEDIT "WEOR."

Table 1 Continued

Sample 3

Restarting the Month (No backup master is created.
Any transactions on the Error File are ignored)

```
/JOB[4]
PMSJOB,CM90000,P10,T20.
USER,XXXXXX,YYYYYY.JOE PMS/Phone/Organization
CHARGE,CHGNO,PROJECT.
GET,GENFILE/UN=CEW2PD.
GENFILE.
SKIP,LBL1.
EXIT.
ENDIF,LBL1.
DAYFILE,GENDAY.
REPLACE,GENDAY.
end of record indicator
USER,ZZZZZZ,PPPPPP.JOE PMS/Phone/Organization.
CHARGE,CHGNO,PROJ.   2
CURRENT MONTH IS MOYY    1
DISTRICT DC district name
RUN PROGRAM 501P5P50
RESTART THE MONTH WITH THE CURRENT TRANSACTIONS AS THE INITIAL MASTER FILE
ADDITIONAL TRANSACTIONS ARE ON FILE FFFFFF[3]
RUN STACK WITH  PRIORITY N
DIRECT OUTPUT TO OUR BULK TERMINAL (COPE ETC) USER ID:CEDCRJ[1]
end of record indicator

Transaction cards (if all transactions are not on file FFFFFF)
end of file indicator
```

---

[1]Change DC to appropriate district code.
[2]Change MO to appropriate month, YY to appropriate year.
[3]If all new transactions are not on cards, replace FFFFFF with appropriate file name.
[4]Optional depending on end of record indicator used. Manual insertion of /EOR requires /JOB at beginning of file. Otherwise, use 7/8/9 multipunch or XEDIT "WEOR."

(3) Select desired options:

(a) Operation options.

- o Change time limit
- o Change memory requirement
- o Change processing priority
- o Change disposition site for output

(b) Input edit opitons.

- o Ignore old error file.

- o Restart the month with the current transaction as the initial master file - purges existing versions of files and creates new ones using the current transactions. This should be used with the "ignore old error file" option; be sure to remove after run.

- o Backup one cycle before starting edit - uses the backup master file as the current master file. Any changes applied in the previous run are ignored; be sure to remove after run.

- o Additional transactions located in file FFFFFF - picks up extra transactions from specified file. More than one "Additional Transactions" card may be used to get data from more than one file.

(c) Output options.

- o Do not print INFORM file

- o Do not punch error cards cannot have cards punched if running under UT200 protocol.

- o Do not list error cards.

- o List all input cards submitted in this update - gives sorted list of all transactions submitted, including the optional input error file, if used.

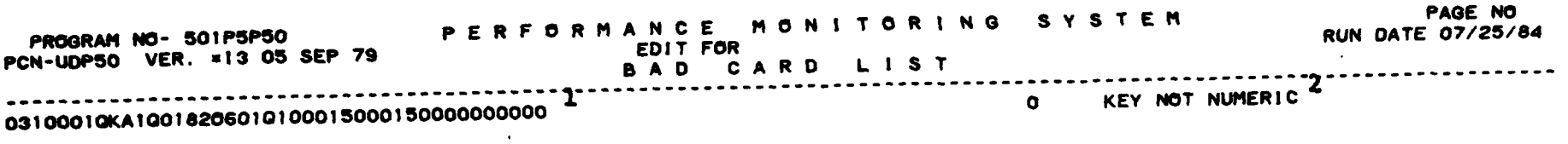
(4) Submit job as per procedure at your site.

(5) Outputs should be:

(a) Listing of cards having incorrect identifying information (Fig 3).

(b) Error listing (all 80 columns listed with error message) (Fig 4).

(c) Error file listing (only field to be corrected appears) (Fig 5).



1-80 column card image

2-error message

Figure 3 Sample Edit Output--Listing of Erroneous Transactions

```
  PROGRAM NO- 501P5P50          P E R F O R M A N C E   M O N I T O R I N G   S Y S T E M                    PAGE NO   11
PCN-UDP50  VER. *13 05 SEP 79                         EDIT FOR  DECEMBER 79                                  RUN DATE 07/25/84
                                                       E D I T   U P D A T E
                   SCRMNTO DWSHP CHNL                             BARGE CANAL LOCK
---------------------------------------------------------------------------------------------------------------------------
         1         2         3         4         5         6         7         8
12345678901234567890123456789012345678901234567890123456789012345678901234567890      ****  E R R O R   M S G   ****
03100181KA110382140112010150001500000000000                                    1      CC22-22 SHIFT NUMB
                                                                                      CC25-29 UPPER GAUGE
031001921234567D01ST 0 0   0FF1103154515581600160316251630                            ADD-RECORD ON MASTER
03100194123456701080100000            N
031001941234567
031001941234567
031001941234567
031001941234567
031001921234567D010T0000 000FF1103154515581600160316251630 1                   2 2    CC39-42 3 START LOCK 4
031001931234567          100005009000008NO  000                                3      CC23-26 LENGTH
                                                                                      CC39-39 VESSEL ASST
03100201KA110482000123 101500 150000000000                                            ADD-RECORD ON MASTER
WARNING CURRENT SHIFT SHOULD BE DAY 03 SHIFT 1  REPORTED IS SEQ 0020 DAY 04 SHIFT 3 5
03100201KA1104820001230101500015000000000000                                   1      CC11-12  MONTH
                                                                                      CC15-16 YEAR
                                                                                      CC21-21 TIME ZONE
                                                                                      CC25-29 UPPER GAUGE
031002122345678U03MT 0 0   0FF110300050015002000250055010502250230023503000305        ADD-RECORD ON MASTER
031002132345678000000001100 50 9 0 8 3NO     0
0310021423456780S020100000 J010100000NI082120000
031002142345678
031002142345678
031002142345678
031002142345678
031002122345678U030T0000 000FF110300050015002000250055010502250230023503000305 2      CC31-32 MONTH ARRIV
                                                                                      CC33-34 DAY ARRIV
                                                                                      CC35-38 TIME ARRIV 6
                                                                                      *****WAIT TIME*****
031002132345678          110005009000803NO  000                                3      CC39-39 VESSEL ASST
```

1- 80 column card image

2- transaction code

3- card column location of erroneous information

5- warning error message

6- error in calculated field

```
*******************************************************************************
BEGIN PROGRAM TO LIST SORTED ERROR CARDS DOUBLE SPACED
*******************************************************************************
03100010KA1Q01820601Q1000150001500000000000                                  0
01100011KA110182CAR50000000000000
01100011   11   82CAR50000000000000                                           1
02100011   11   82ACT00000000000000                                           1
0310002211111111U01ST0000 006FF1010005000500070009002000022
0310002311111111000000011000501001 0302N00 000000000000000
03100024111111100321060009020100000000N          0
031000241111111
031000241111111
031000241111111
031000241111111
          1                  2         2                                      3
03100022                     F       0050                                    2
03100023          1100      0302 00                                           3
```

1- identifying information from columns 1-8

2- fields containing errors

3- transaction code

Figure 5 Sample Edit Output--Listing of Fields to be Corrected

(d) Sorted list of input transactions (optional) (Fig 6).

(e) Vessel cross check (Fig 7).

(f) Punched deck of error file (optional).

(g) Master file.

(h) Error file.

(i) Backup file, if not initial run for the month.

(6) Correct error file or suppress edit. Additional new transactions may be added to the file.

(7) Re-submit job.

(8) Correct error file and add any transactions.

(9) Continue the cycle of adding new transactions, correcting the error file and submitting the edit until data are as error-free as possible and all data for the month have been processed.

(10) For especially difficult errors, use the PP460 program to get a formatted dump of the PMS master file. A sample procedure is shown in Table 2. The select file SELCARD, must be created before execution. See Appendix D for the record layout and content of SELCARD. Figure 2 is a sample of PP460 output.

(11) Before sending a master file to the central library, test reports for verifying data accuracy can be generated by following the sample in Table 3. This step is optional, but is recommended.

(12) Prepare procedure for updating central library file and submit. See example in Table 4.

(13) Check dayfile, PMSDAYF, to verify successful execution.

(14) After data have been successfully transmitted to the central library, make a backup tape copy of the master file (see Table 5) and purge the master and backup files from your account.

III. The PMS Library.

The PMS library consists of three data files used as input to the report programs: the detail lockage data file (LCKAGE), the summary data file (SUMMRY) and the standards information file (STNDRD). Monthly district master files added to the central library are run through a program which updates the library files and makes them accessible to all Corps users. The record

```
**********************************************************************************
BEGIN PROGRAM TO DUMP SORTED TRANSACTIONS

*******************************************************************************
01100011KA110182CARE                                                          0
01100011   11   82CAR5000000000000000                                         1
02100011KA110182ACTV                                                          0
02100011KA1101820001230101650008500000000                                     0
02100012123456711S00000000FF11010030003200340036004000420000000000000000000   0
021000131234567000000001500750080522N000000000000000000000                    0
021000141234567 J020100000 S022200022                                         0
0310002211111111101ST0000000FF1101000500050007000900200022                    0
0310002311111111000000011000501001030 2N0000000000000000                      0
03100024111111111032106000102010                                              0
03100024          0              2  00                                        1
03100022                               F          0050                        2
03100023                1100          0302 00                                 3
031000332222222          0900050090002O3N000R     11000000000000000           0
031000342222222205030100000J028101000                                         0
03100032          00             000000000000000000000000000                  2
03100033                                                0000000000000         3
031000423333334U02ST0200000EF1101003000450046005001100115014001420145020502 10 0
031000443333333 S011101200010822065OO                                         0
03100042                               F          0450046005001100        14502050   2
03100043                0000000000000                                         3
03100051KA110182140112 1 1500 150061000000                                    0
03100051   11   82      12  01500                                             1
0310006244444444U01ST 0 0    0FF11011630163016351640164517 50                 0
0310006344444440         985 51  9  0  0  3N0      0                          0
03100062                                                    16451750          2
03100063          00000000985           03                                    3
03100071KA1102820220113 1 15001500000000000                                   0
03100071   11   82      113010150                                             1
03100091                                                                      D
03100094                                                                      D
03100092555555 101SC 1 1    2FF1101235807100715072007400745                   0
03100093555555 00000001000  60  8  9  1  6N0      0                           0
03100094555555S0601000001012108000                                            0
03100094          0              1  08                                        1
03100093                1000          0106 0                                  3
03100101KA110282140111010150001500000000000                                   0
03100101   11   82      1    01500                                            1
0310011110282160122020150001500000 2                                          0
03100111   26   60      2015000150000002                                      1
03100121KA1103820001230101500015000000000 0                                   0
03100121   11   82      2    01500                                            1
0310013266666663201MT0000000FF1103021002100215022003000305                    0
03100133666666600000001000075090001 01N0 0000                                 0
0310013466666661010100000SC18001000                                           0
03100134          0   10         1                                            1
03100132                               F103021002100      220030003050        2
03100133                                  0101 0                              3
031001437777777000000009000500901010 0Y000000                                 0
0310014[illegible]    7777S012504000                                          0
0310014           0                                                           1
0310014[illegible]          00             000000000000000000000000000        2
03100151KA[illegible]1038206011101015000150000000000                          0
```

Figure 6   Sample Edit Output--Optional Sorted Listing of Input Transactions

CROSS CHECKS BETWEEN VESSELS

ALL THE FOLLOWING LOCKAGES HAVE INTERRELATED TIMES

SEQ #	ENTRY	EXIT	DIR	SOL	BOS	EOE	SOE	EOL	CUT
0021	F	F	U	04/0015	04/0020	04/0025	04/0055	04/0105	FIRST
0021	F	F	U	04/0225	04/0230	04/0235	04/0300	04/0305	LAST
0022	F	E	U	04/0027	04/0030	04/0035	04/0110	04/0115	ONLY
0023	E	E	D	04/0115	04/0120	04/0125	04/0145	04/0150	ONLY
0024	E	E	D	04/0150	04/0155	04/0200	04/0220	04/0225	ONLY

FROM THE ABOVE LOCKAGES THE FOLLOWING BLOCKS OF CUTS WERE DETERMINED TO HAVE LOCKED TOGETHER(WITH ERRORS BELOW EACH)

0024	E	E	D	04/0150	04/0155	04/0200	04/0220	04/0225	ONLY

DIRECTION OF LOCKAGE FOR EXCHANGE ENTRY CAN NOT BE THE SAME AS LAST BLOCK

-EOR--

Figure 7 Sample Edit Output--Vessel Cross Check

TABLE 2

Sample Dump Run (PP460)

All statements begin in card column or character position 1.

```
/JOB[4]
MSPJOB,CM90000,P3,T100.
USER,XXXXXX,YYYYYY,JOE/Phone/Organization
CHARGE,CHGNO,PROJECT.
NEW,LCKAGE.
GET,NEWMAST=DCYYMOM[1]
GET,PP460/UN=CEW2PD.
GET,SELCARD.
PP460.
SKIP,DUMMY.
ENDIF,DUMMY.
ROUTE,DBDUMP,DC=PR,UN=CEDCRJ[2]
EXIT.
DAYFILE,PP46D.
REPLACE,P46D.

end of information indicator
```

---

[1]Use appropriate name for your master file.
[2]Use appropriate user ID for your remote batch terminal.
[4]Optional depending on end of record indicator used. Manual insertion of /EOR requires /JOB at beginning of file. Otherwise, use 7/8/9 multipunch or XEDIT "WEOR."

TABLE 3

Sample Procedure to Test Data Before Sending to Central Library

STEP 1. Create required data files

```
/JOB[4]
PMSDSK,CM100000B,T0120,P3.
USER,XXXXXX,YYYYYY.
CHARGE,CHGNO,PROJECT
*****THIS IS FOR DIST DC*****    (Replace all occurrences of DC
GET,DISTRCD=DISTDC/UN=CEW2PD.     with your district code)
GET,PMSPRO/UN=CEW2PD.
GET,PARM001/UN=CEW2PD.
GET,INFILE=DCYRMOM.  (Change DCYRMOM to master file e.g.G38209M)
PMSPRO.
REPLACE,LCKAGE=LKDC.
REPLACE,STNDRD=STDC.
REPLACE,SUMMRY=SMDC.
SKIP,LBL1.
EXIT.
ENDIF,LBL1.
DAYFILE,MASSPRD.
REPLACE,MASSPRD.
```

Submit step 1 to create disk files.

STEP 2. Create required JCL for report

Run GENINT for the report(s) you want to test. This will create a local copy of PMSEXEC which you should save on your account for editing. Depending on the reports you select to run, PMSEXEC will vary in content.

STEP3. Modify PMSEXEC, as follows:

```
VSN(STNDRD=STNDRD)
LABEL(STNDRD)...              Delete both cards and add "GET,STNDRD=STDC."

VSN(LCKGIN=YOUR DISTRICT TAPES)
LABEL(LCKGIN...               Delete both cards and add "LCKGIN=LKDC."

GET,SUMMRY /UN=CEW2PD         Change to "GET,SUMMRY=SMDC."
```

Save the modified PMSEXEC File and submit it to run test reports.

When you have run the test reports and are satisfied with the results the LKDC, STDC and SMDC files can be purged from your account; if you make changes to the master file and wish to run new tests from the corrected data only Step 1 need be repeated before submitting Step 3.

---

[4]Optional depending on end of record indicator used. Manual insertion of /EOR requires /JOB at beginning of file. Otherwise, use 7/8/9 multipunch or XEDIT "WEOR."

TABLE 4
Sample Library Update

All statements begin in card column or character position 1.

```
/JOB4
PMSJOB,CM900000,P10,T20.
USER,XXXXXX,YYYYYY.JOE PMS/Phone/Organization
CHARGE,CHGNO,PROJECT.GET,GENFILE/UN=CEW2PD.
GENFILE.
SKIP,DUMMY.
EXIT.
ENDIF,DUMMY.
DAYFILE,GENDAY.
REPLACE,GENDAY.
end of record indicator
USER,ZZZZZZ,PPPPPP.JOE/Phone/Organization.
CURRENT MONTH IS MOYY
DISTRICT DC district name
NOINFORM
RUN PROGRAM 501P5P40 VERSION A
```

---

[1]Change DC to appropriate district code.
[2]Change MO to appropriate month, YY to appropriate year.
[4]Optional depending on end of record indicator used. Manual insertion of /EOR requires /JOB at beginning of file. Otherwise, use 7/8/9 multipunch or XEDIT "WEOR."

TABLE 5

Sample Back-up of Monthly District Master

```
/JOB[4]
BKUP,P3,T10.
USER,XXXXXS,YYYYYY,NAME
CHARGE,CHGNO,PROJECT.
GET,DCYYMOM.
SKIP,LBL1.
EXIT.
EXIT.
ENDIF,LBL1.
VSN(OT=VVVVVV)
LABEL(OT,NT,D=GE,SI=DC1966,FI=DCYYMOM,W,QN=9999)[1,2,3]
COPYEI,DCYYMOM,OT.
SKIP,LBL2.
EXIT.
ENDIF,LBL2
DAYFILE,BKUPDAY.
REPLACE,BKUPDAY.
```

---

[1] Replace DC with your district code.
[2] Replace MO with the appropriate month, YY with the appropriate year.
[3] For the 1st run QN=1, for subsequent runs (on the same tape), QN=9999.
[4] Optional depending on end of record indicator used. Manual insertion of /EOR requires /JOB at beginning of file. Otherwise, use 7/8/9 multipunch or XEDIT "WEOR."

content and layouts are shown in Appendix D. When jobs are processed using standard PMS procedures, required tapes, files and programs will automatically be retrieved and executed. Monthly data are added to the end of the tapes and files as they are received through an open and extend function and are not necessarily stored in chronological order. Every district has complete access to all data in the library. If data are needed for special applications, a complete list of the tapes in the central library and the associated VSN's may be obtained as follows:

For an interactive session enter:
"GET,TAPES/UN=CEW2PD." carriage return
"COPY,TAPES." carriage return

For batch execution, the commands remain the same but must be preceded by the appropriate "Job" and "User" cards.

A. Detail data file. (LCKAGE)

Records on the detail lockage data file contain the information collected for each lockage and vessel as well as current shift information. This file is stored on magnetic tape. Each district has one or more tapes in the library containing all the detailed information that has been copied to the library for that district. Generally, the data for each district reside on two tapes; one contains current and prior year information and the other contains historical information.

B. Summary data file. (SUMMRY)

The summary information file is an indirect public access disk file under user id CEW2PD. This file consists of monthly summaries of selected data elements at each chamber by direction. As each district's data is processed, key information, aggregated by direction, is stored on the summary file, allowing frequently used data elements to be accessed as quickly and inexpensively as possible. Data for all districts reside on a single file and new data are appended to the end of the file as they are received.

C. Standards data file. (STNDRD)

The standards information file contains a chamber by chamber accumulation of statistical data pertaining to lockage timing functions during a given month. There is an array for upbound performance and one for downbound performance. The major dimension of each array is lockage type and the minor dimension is lockage function (e.g., type of entry). The file contains data for all districts and is on a single magnetic tape. Additional monthly data are added to the tape as new data are made available to the PMS library.

Appendix A

PMS

System Flowchart

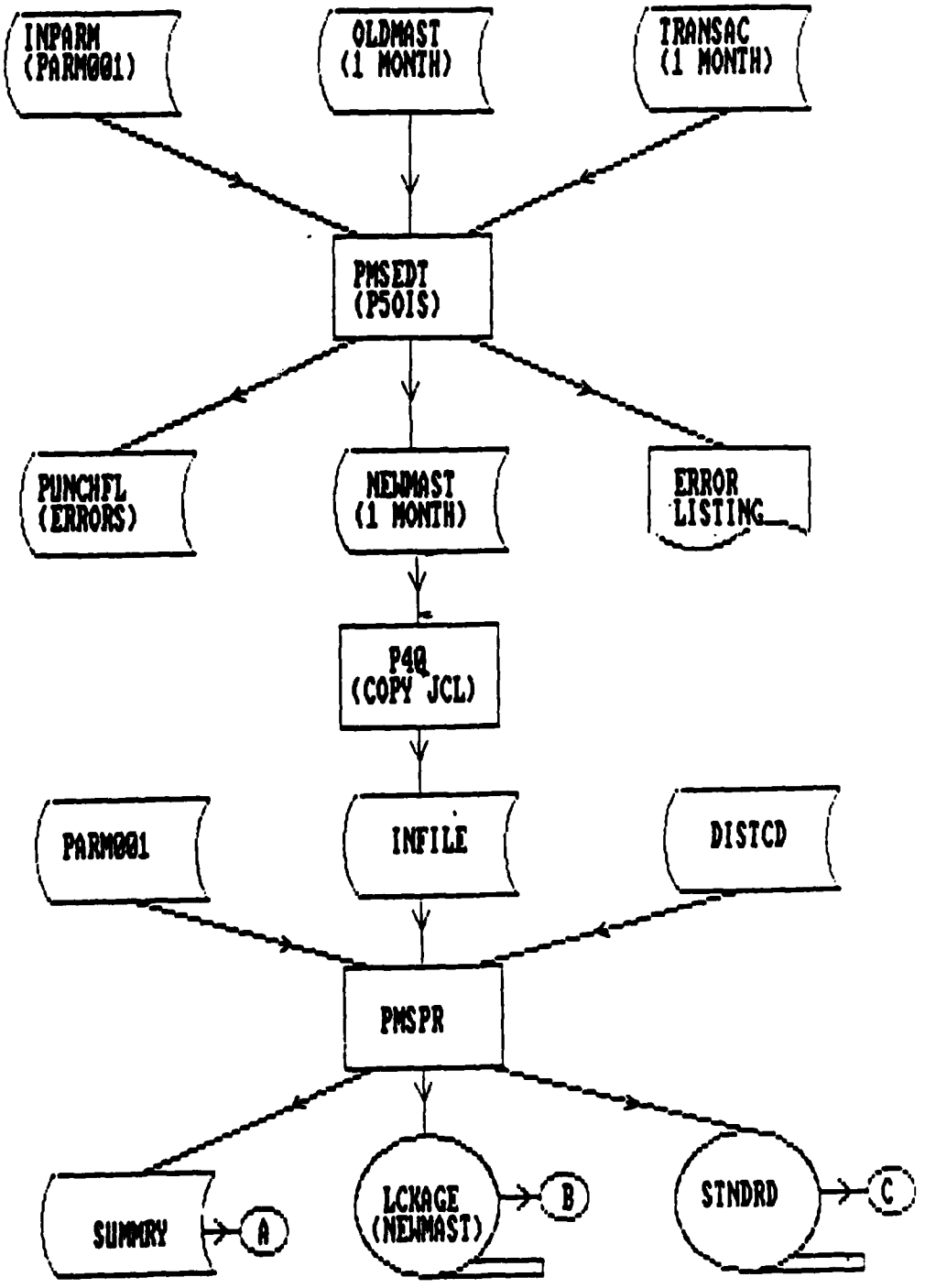


Figure A-1 Lock Performance Monitoring System - System Flowchart

Appendix B

Sample Input Forms

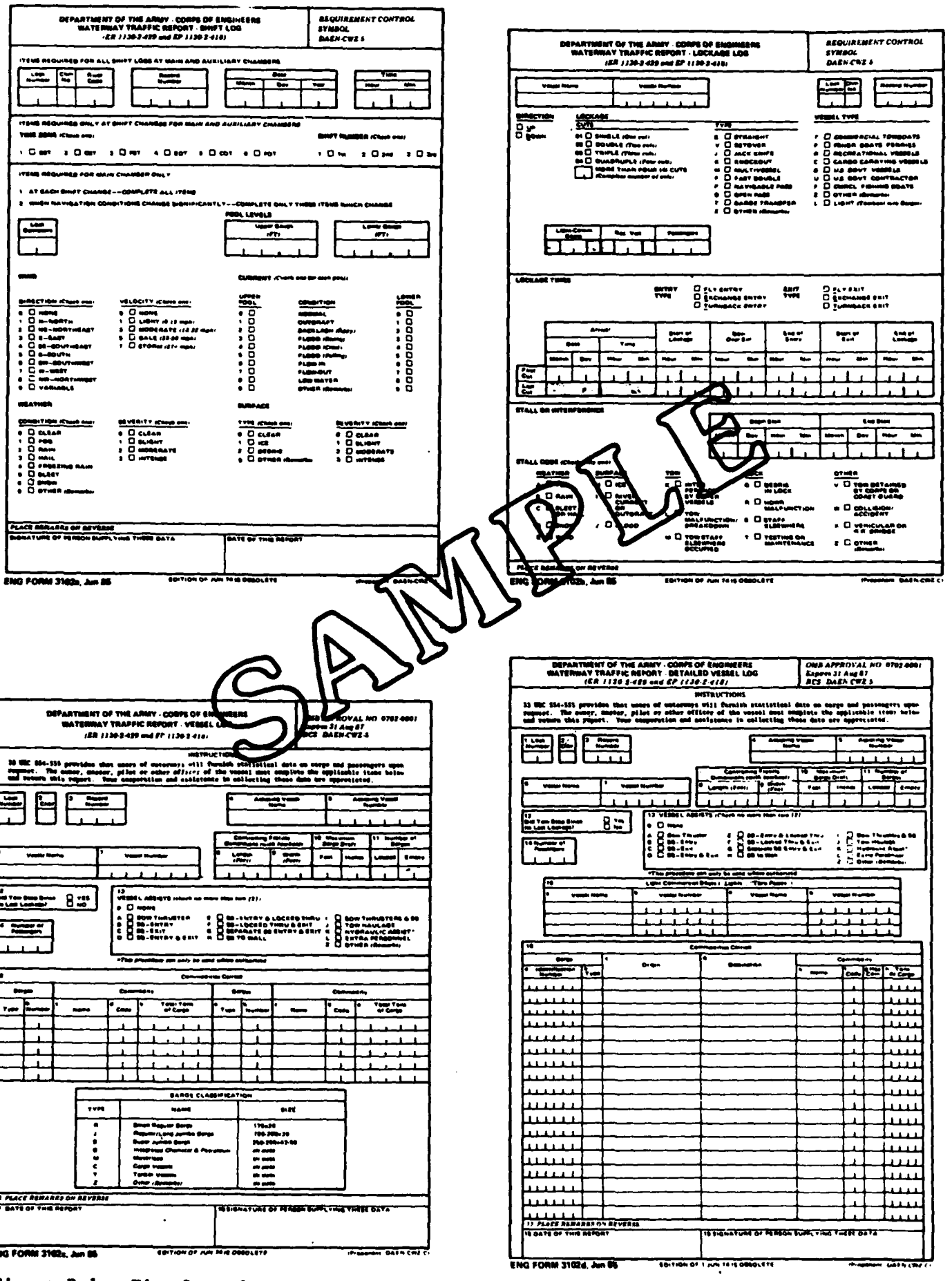


Figure B-1 Five Logs Constituting the Waterway Traffic Report

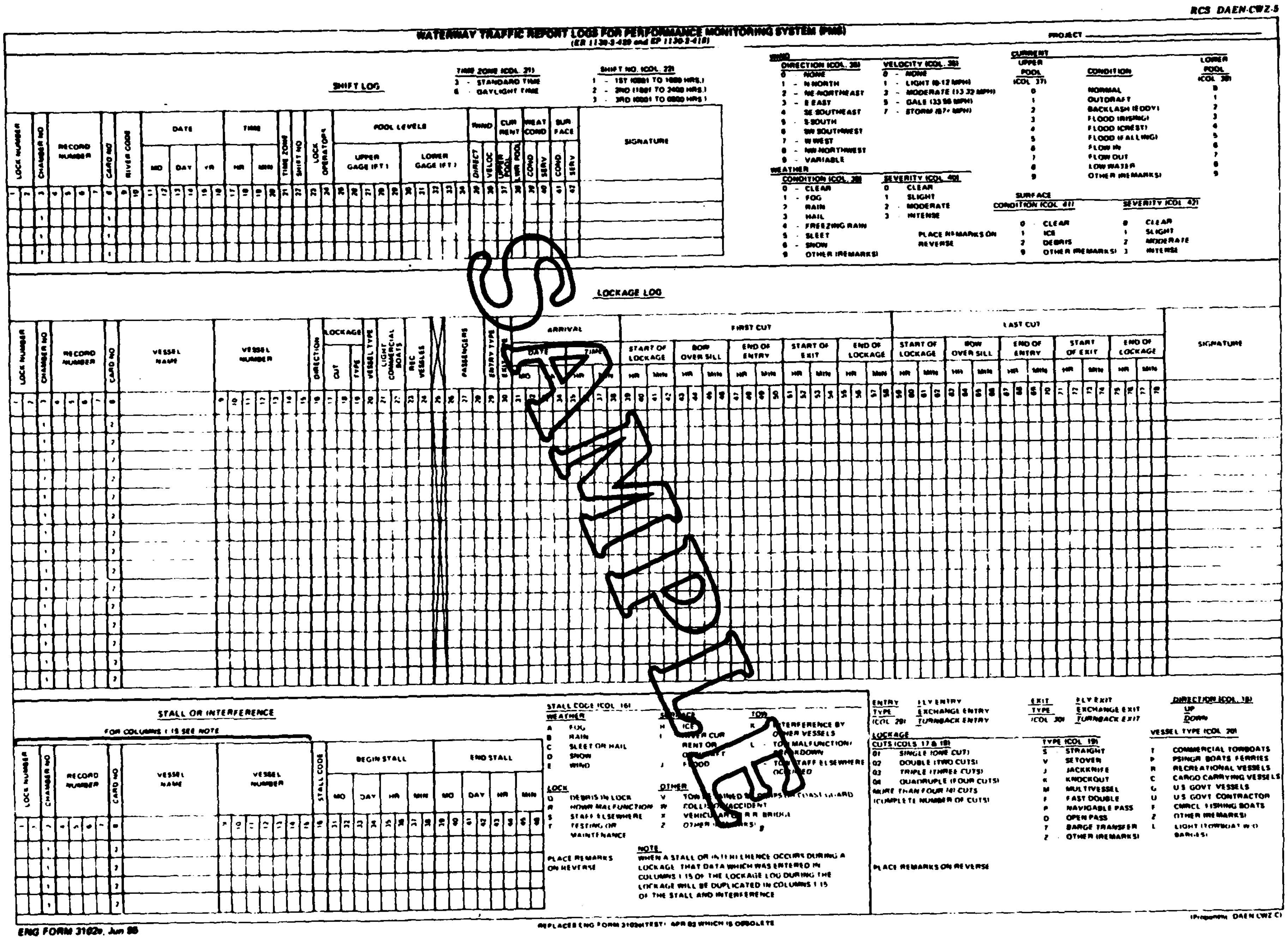


Figure B-1 (Continued

Appendix C

Instructions for Completing PMS Data Entry Forms

The Shift Log (ENG Form 3102a), Appendix B, is completed at each shift change and when navigation conditions change significantly. If an auxiliary chamber exists and is in operation at a given facility, separate Shift Logs are completed for the main and auxiliary chambers.

1. All items described in this section must be completed on each Shift Log.

a. Lock Number - The two-digit number assigned to each lock is usually preprinted on the Shift Log. If not, record the number assigned to the lock. Appendix J contains the list of identification numbers assigned to each lock on the inland waterways.

Example: The locks at Locks and Dam No. 26 on the Mississippi would be recorded as 26.

b. Chamber Number - The one-digit chamber number is usually preprinted on the Shift Log. If it is not, record the one-digit number for the lock chamber. If the lock only has one chamber, then record "1" in this field. Appendix J, contains the codes assigned to each chamber.

Example: For the small (auxiliary) chamber at Locks and Dam No. 26, record a "4" in the chamber field.

c. River - The two-digit river code is usually preprinted on the Shift Log. If it is not, record the code for the river system that has this lock. Appendix J contains a list of rivers and their respective codes.

d. Record Number - Record the four-digit record number. The record number is a number obtained from a continuous sequential numbering of the forms for each lock and chamber, starting with 0001 and ending with 9999. It is entered on the Shift Log when the Shift Log is completed and on the Lockage Log at "Start of Lockage." The record number assigned to either the Vessel log or the Detailed Vessel Log is the same as the record number assigned to the Lockage Log for that vessel. If 9999 is the last record number used, then the next sequence number is 0001. The numbers are to be restarted at 0001 hour on the first day of each month.

Example: The last Lockage Log record number is 0528, and a shift change has just occurred, then 0529 is the next available number and should be recorded in the Shift Log record number field.

e. Date - Record the month, day, and year of the shift change. Since the shift change is assumed to start during the minute after the hour (e.g., at 0001), the date recorded for a shift beginning at 0001 is the day just started.

(1) Month - Record the two-digit month of the year. Starting with January, the months are numbered from 01 to 12. Hence, May is coded as 05.

(2) Day - Record the two-digit day of the month. The days are numbered from 01 through 31, depending on the length of the month. Thus, the seventh of May would be recorded as 07.

(3) Year - Record the two-digit year number. The year number is the last two digits of the year. Thus, for the year 1974, 74 is the year number to be recorded.

Example: The date May 7, 1974, is recorded as 050774.

f. Time - Record the time when the Shift Log is completed.

(1) Hour - Record the two-digit hour.

(2) Minute - Record the two-digit minute in the hour.

Example: If a fog lifted at 2:30 p.m., necessitating the completion of a shift log, 1430 should be recorded in the time field.

2. The following items are completed for Shift Logs completed at shift changes for the main and auxiliary chambers. For Shift Logs completed at other than shift changes, these items should be left blank.

a. Time Zone - Check the box which corresponds to the local time zone and daylight savings or standard time in which the time data are being recorded.

b. Shift Number - Check the box representing the shift number for the shift.

3. The following items are to be completed only for the main chamber. These items are to be left blank on Shift Logs completed for auxiliary chambers. These data are entered at shift changes and when navigation conditions change significantly enough to affect vessel lockages. At shift changes, all items should be completed. When there is a significant change in navigation conditions, prepare an additional Shift Log, for items which have changed.

a. Number of Lock and Dam Operators - Record the total number of lock and dam operators available at all chambers of the lock used to serve navigation. This number does not include full-time maintenance or supervisory personnel, unless these personnel are used to serve navigation. If a maintenance man is used part-time during a shift to serve navigation, he should not be considered in the total number of lock and dam operators unless he serves navigation more than 50 percent of his time.

Example: If two lock and dam operators are on duty on the main chamber and one operator is on duty on the auxiliary chambers, enter 0,3 on the form.

b. Pool Levels - The pool levels above and below the lock are observed on the recording devices and are measured to the nearest hundredth of a foot. For those locks at which the designation of the "upper" and "lower" pools is ambiguous (because of reverse flows of tidal waters or pools being at equal elevations), refer to Section J for the designation of the "upper" and "lower" pools.

(1) Upper Gauge - Record the water level in the upper pool.

Example: The upper gauge indicates a level of 418.85 feet; thus, record 41885.

(2) Lower Gauge - Record the water level in the lower pool.

Example: The lower gauge indicates a level of 407.28 feet; thus, record 40728.

c. Wind - Indicate the wind direction and velocity. If no wind exists, check both "none" boxes. If two conditions occurr simultaneously, record the condition most significantly affecting navigation.

(1) Direction - This field defines the direction from which the wind is coming. See Appendix J for a list of wind direction codes.

(2) Velocity - This field indicates the wind velocity. Appendix J contains a list and description of these codes.

d. Current - Indicate the current condition. Appendix J contains a list of current condition codes. If two conditions occurr simultaneously, record the condition most significantly affecting navigation.

(1) Upper Pool - This field indicates the current in the upper pool or upriver.

(2) Lower Pool - This field indicates the current in the lower pool or downriver.

e. Weather - This field indicates the weather conditions and severity. If the weather is clear, check the "CLEAR" boxes. If two conditions occurr simultaneously, record the condition most significantly affecting navigation.

(1) Condition - This field indicates the existing weather condition. Appendix J contains a list of weather condition codes.

(2) Severity - This field indicates the relative severity of the described condition. See Appendix J for a list of severity codes for weather conditions.

f. Surface Condition - Record the water's surface type and severity. If the surface is clear, check both "CLEAR" boxes. If two conditions occurr simultaneously, record the condition most significantly affecting navigation.

(1) Condition - This field indicates the existing surface condition. See Appendix J for a list of surface type codes.

(2) Severity - This field indicates the relative severity of the condition described above. See Appendix J for a list of severity codes for surface conditions.

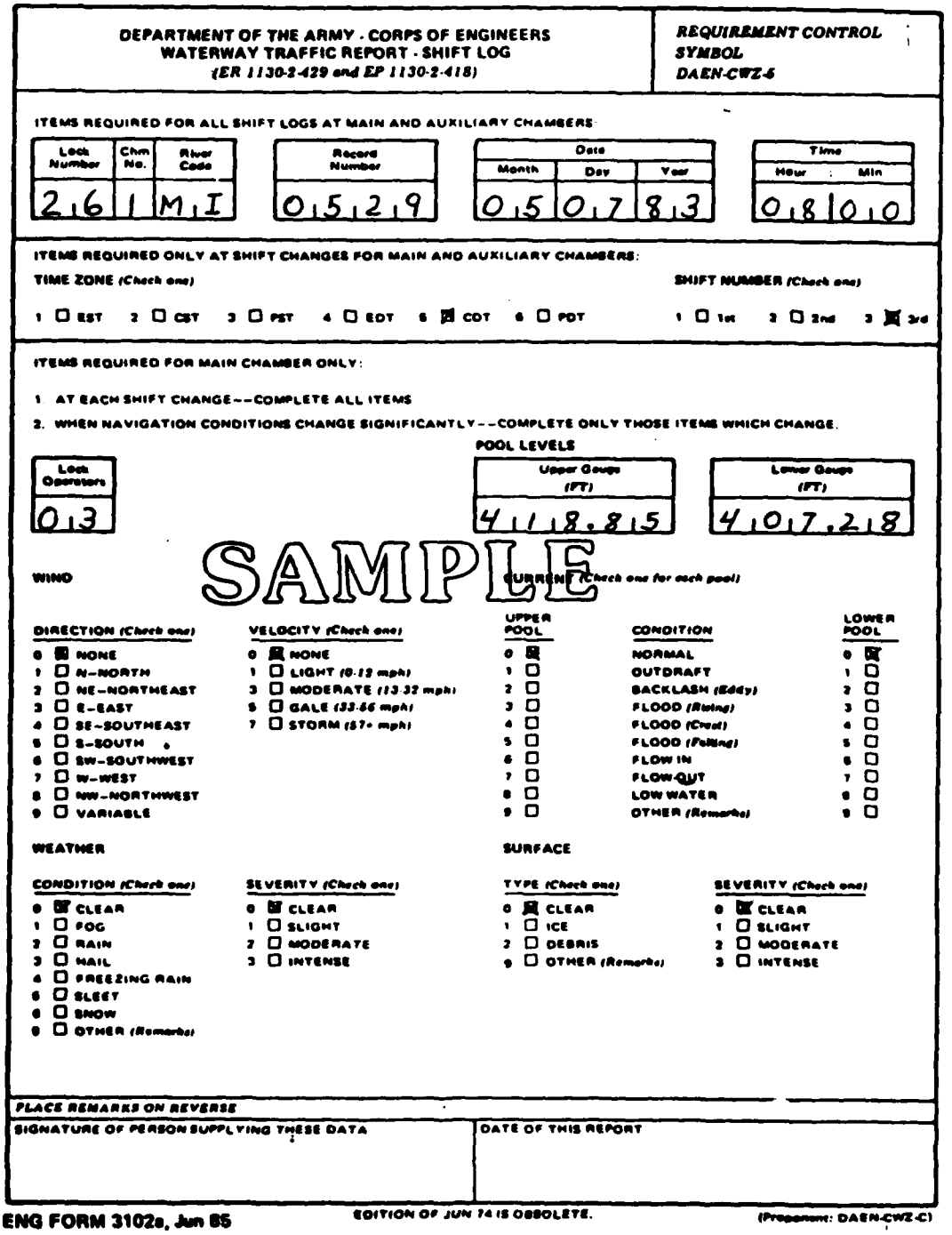
g. Remarks - Use this space to record unusual circumstances or to explain "other" codes which were checked on this Shift Log. If additional space is required, complete the remarks on the reverse side of the Shift Log.

h. Signature - Record the signature of the person filling out this Shift Log.

4. Figures C-1 and C-2 contain examples of completed Shift Logs.

a. Sample Shift Log "a" (number 0529), figure C-1, shows a Shift Log completed at a shift change for the main chamber.

b. Sample Shift Log "b" (number 0525), figure C-2, shows a supplemental Shift Log where a moderate wind from the North has arisen at about 2:30 P.M. All other conditions remain unchanged.



DEPARTMENT OF THE ARMY · CORPS OF ENGINEERS
WATERWAY TRAFFIC REPORT · SHIFT LOG
(ER 1130-2-429 and EP 1130-2-418)

REQUIREMENT CONTROL SYMBOL
DAEN-CWZ-6

ITEMS REQUIRED FOR ALL SHIFT LOGS AT MAIN AND AUXILIARY CHAMBERS:

Lock Number	Chm No.	River Code	Record Number	Date: Month	Date: Day	Date: Year	Time: Hour	Time: Min
2,6	1	M,I	0,5,2,9	0,5	0,7	8,3	0,8	0,0

ITEMS REQUIRED ONLY AT SHIFT CHANGES FOR MAIN AND AUXILIARY CHAMBERS:

TIME ZONE (Check one)

1 ☐ EST 2 ☐ CST 3 ☐ PST 4 ☐ EDT 5 ☒ CDT 6 ☐ PDT

SHIFT NUMBER (Check one)

1 ☐ 1st 2 ☐ 2nd 3 ☒ 3rd

ITEMS REQUIRED FOR MAIN CHAMBER ONLY:

1. AT EACH SHIFT CHANGE--COMPLETE ALL ITEMS
2. WHEN NAVIGATION CONDITIONS CHANGE SIGNIFICANTLY--COMPLETE ONLY THOSE ITEMS WHICH CHANGE.

Lock Operators	POOL LEVELS: Upper Gauge (FT)	POOL LEVELS: Lower Gauge (FT)
0,3	4,1,8.8,5	4,0,7.2,8

SAMPLE

WIND

DIRECTION (Check one)

0 ☒ NONE
1 ☐ N–NORTH
2 ☐ NE–NORTHEAST
3 ☐ E–EAST
4 ☐ SE–SOUTHEAST
5 ☐ S–SOUTH
6 ☐ SW–SOUTHWEST
7 ☐ W–WEST
8 ☐ NW–NORTHWEST
9 ☐ VARIABLE

VELOCITY (Check one)

0 ☒ NONE
1 ☐ LIGHT (0-12 mph)
3 ☐ MODERATE (13-32 mph)
5 ☐ GALE (33-56 mph)
7 ☐ STORM (57+ mph)

CURRENT (Check one for each pool)

	UPPER POOL	LOWER POOL
CONDITION		
0	☒	☒
NORMAL		
1	☐	☐
OUTDRAFT		
2	☐	☐
BACKLASH (Eddy)		
3	☐	☐
FLOOD (Rising)		
4	☐	☐
FLOOD (Crest)		
5	☐	☐
FLOOD (Falling)		
6	☐	☐
FLOW IN		
7	☐	☐
FLOW-OUT		
8	☐	☐
LOW WATER		
9	☐	☐
OTHER (Remarks)		

WEATHER

CONDITION (Check one)

0 ☒ CLEAR
1 ☐ FOG
2 ☐ RAIN
3 ☐ HAIL
4 ☐ FREEZING RAIN
5 ☐ SLEET
6 ☐ SNOW
9 ☐ OTHER (Remarks)

SEVERITY (Check one)

0 ☒ CLEAR
1 ☐ SLIGHT
2 ☐ MODERATE
3 ☐ INTENSE

SURFACE

TYPE (Check one)

0 ☒ CLEAR
1 ☐ ICE
2 ☐ DEBRIS
9 ☐ OTHER (Remarks)

SEVERITY (Check one)

0 ☒ CLEAR
1 ☐ SLIGHT
2 ☐ MODERATE
3 ☐ INTENSE

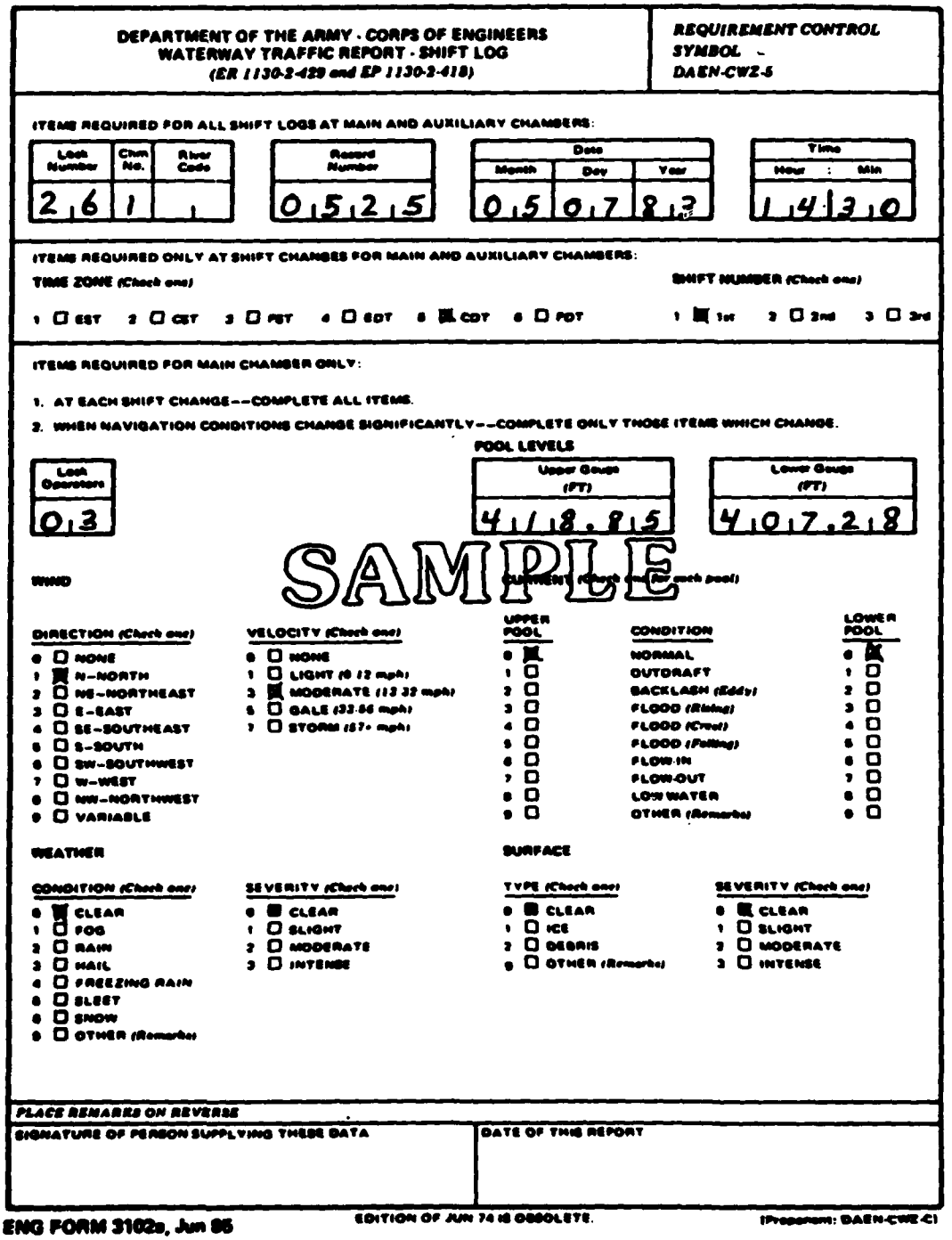
PLACE REMARKS ON REVERSE

SIGNATURE OF PERSON SUPPLYING THESE DATA

DATE OF THIS REPORT

ENG FORM 3102a, Jun 85 EDITION OF JUN 74 IS OBSOLETE. (Proponent: DAEN-CWZ-C)

Figure C-1 Sample Completed Shift Log



DEPARTMENT OF THE ARMY - CORPS OF ENGINEERS
WATERWAY TRAFFIC REPORT - SHIFT LOG
(ER 1130-2-429 and EP 1130-2-418)

REQUIREMENT CONTROL SYMBOL - DAEN-CWZ-5

ITEMS REQUIRED FOR ALL SHIFT LOGS AT MAIN AND AUXILIARY CHAMBERS:

Lock Number	Chm No.	River Code	Record Number	Date Month	Date Day	Date Year	Time Hour	Time Min
26	1	1	0525	05	07	83	1430	

ITEMS REQUIRED ONLY AT SHIFT CHANGES FOR MAIN AND AUXILIARY CHAMBERS:

TIME ZONE (Check one)

1 ☐ EST 2 ☐ CST 3 ☐ PST 4 ☐ EDT 5 ☒ CDT 6 ☐ PDT

SHIFT NUMBER (Check one)

1 ☒ 1st 2 ☐ 2nd 3 ☐ 3rd

ITEMS REQUIRED FOR MAIN CHAMBER ONLY:

1. AT EACH SHIFT CHANGE--COMPLETE ALL ITEMS.
2. WHEN NAVIGATION CONDITIONS CHANGE SIGNIFICANTLY--COMPLETE ONLY THOSE ITEMS WHICH CHANGE.

Lock Operators	POOL LEVELS Upper Gauge (FT)	POOL LEVELS Lower Gauge (FT)
03	418.85	407.28

SAMPLE

WIND

DIRECTION (Check one)

0 ☐ NONE
1 ☒ N-NORTH
2 ☐ NE-NORTHEAST
3 ☐ E-EAST
4 ☐ SE-SOUTHEAST
5 ☐ S-SOUTH
6 ☐ SW-SOUTHWEST
7 ☐ W-WEST
8 ☐ NW-NORTHWEST
9 ☐ VARIABLE

VELOCITY (Check one)

0 ☐ NONE
1 ☐ LIGHT (0-12 mph)
3 ☒ MODERATE (13-33 mph)
5 ☐ GALE (33-56 mph)
7 ☐ STORM (57+ mph)

CURRENT (Check one for each pool)

	UPPER POOL	LOWER POOL
CONDITION		
0 NORMAL	☒	☒
1 OUTDRAFT	☐	☐
2 BACKLASH (Eddy)	☐	☐
3 FLOOD (Rising)	☐	☐
4 FLOOD (Crest)	☐	☐
5 FLOOD (Falling)	☐	☐
6 FLOW-IN	☐	☐
7 FLOW-OUT	☐	☐
8 LOW WATER	☐	☐
9 OTHER (Remarks)	☐	☐

WEATHER

CONDITION (Check one)

0 ☒ CLEAR
1 ☐ FOG
2 ☐ RAIN
3 ☐ HAIL
4 ☐ FREEZING RAIN
5 ☐ SLEET
6 ☐ SNOW
9 ☐ OTHER (Remarks)

SEVERITY (Check one)

0 ☒ CLEAR
1 ☐ SLIGHT
2 ☐ MODERATE
3 ☐ INTENSE

SURFACE

TYPE (Check one)

0 ☒ CLEAR
1 ☐ ICE
2 ☐ DEBRIS
9 ☐ OTHER (Remarks)

SEVERITY (Check one)

0 ☒ CLEAR
1 ☐ SLIGHT
2 ☐ MODERATE
3 ☐ INTENSE

PLACE REMARKS ON REVERSE

SIGNATURE OF PERSON SUPPLYING THESE DATA	DATE OF THIS REPORT

ENG FORM 3102a, Jun 85 EDITION OF JUN 74 IS OBSOLETE. (Program: DAEN-CWE-CI)

Figure C-2 Sample Completed Shift Log for Change in Navigation Conditions

LOCKAGE LOG

The Lockage Log (ENG Form 3102b) (Appendix B) is completed for each vessel transiting the lock except for light boats transiting with other vessels for which the Lockage Log has been completed or for recreational vessels. If several vessels other than light boats or recreational craft lock through at the same time (a "multivessel" lockage), a separate Lockage Log should be completed for each vessel.

1. Vessel Name

Record the name of the vessel. A Vessel Index File will be provided to each lock and periodically updated. If a name and identification number for a specific vessel cannot be located in the Vessel Index File, contact the District Office. The name which is recorded has to be identical to the name recorded in the Vessel Index File.

Example: If the "Sunflower" is calling in, record "Sunflower" in the vessel name field.

2. Vessel Number

Record the seven-digit vessel identification number from the Vessel Index File. If a recreational vessel is the only vessel using the lock, record 9999999 (all nines) as the vessel number.

Occasionally, two vessels will have the same name. In this case, obtain the name of the owner before looking up the vessel number in the Vessel Index File. Although two vessels might have the same name, their numbers will be different and can be correctly determined based on the vessel's owner.

Example: Suppose that the Vessel Index File indicates that the Sunflower's number is 1237654, then the Vessel Number is recorded as 1237654.

3. Lock Number

If the two-digit number assigned to this lock is not preprinted on the Lockage Log, record this number. Appendix J contains the identification number assigned to each lock on the inland waterways.

Example: The locks at Locks and Dam No. 26 on the Mississippi River would be recorded as 2 6.

4. Chamber Number

If the one-digit number assigned to this chamber is not preprinted on the Lockage Log, record the number identifying the chamber. If the lock has only one chamber, record "1" in this field. Appendix J contains the identification number assigned to each chamber at each lock.

Example: For the small (auxiliary) chamber at Locks and Dam No. 26, record a "4" in the chamber field.

5. Record Number

Record the four-digit record number for the Lockage Log when the lock is ready to start processing the vessel. The record number is a number obtained from a continuous sequential numbering of the shift and lockage logs for each chamber, starting with 0001 and ending with 9999. The numbers are to be restarted at 0001 hour on the first day of each month or whenever record number 9999 has been reached.

Record numbers are assigned in the order in which the vessels start their lockage. Thus, if several qualifying vessels are transiting in a single lockage, a separate record number is assigned to the Lockage Log for each vessel. The vessel with the lowest record number assigned must start its lockage before those with higher record numbers unless record 9999 is reached.

Example: The last event was a shift change, whose record number is 0529. The next event is a Start of Lockage. Since 0530 is the next record number, 0530 is recorded on the Lockage Log for the vessel beginning its lockage.

6. Direction

Check the direction that the vessel is going; either upriver or downriver. For those locks where there is no directionality or changing directionality (for example, waterways with tidal flows) see Appendix J or consult the District Office for guidance.

Example: The Sunflower is traveling up the Mississippi River, hence the UP box is marked as follows:

x	UP
	DOWN

7. Lockage

Record the lockage type and number of cuts of the vessels transiting the lock. Two fields are required to completely specify the lockage:

a. Cuts - Check the box indicating the number of cuts or lockage cycles required to serve the tow.

If more than four (4) cuts are required, record the number of cuts in the two boxes supplied following the check box for quadruple cuts.

b. Type - Check the box which best represents the type of lockage. Figure C-3 illustrates the various lockage codes: See Appendix J for codes and description.

Table C-1 contains examples of typical lockages and the correct lockage type and number of cuts.

LOCKAGE TYPES

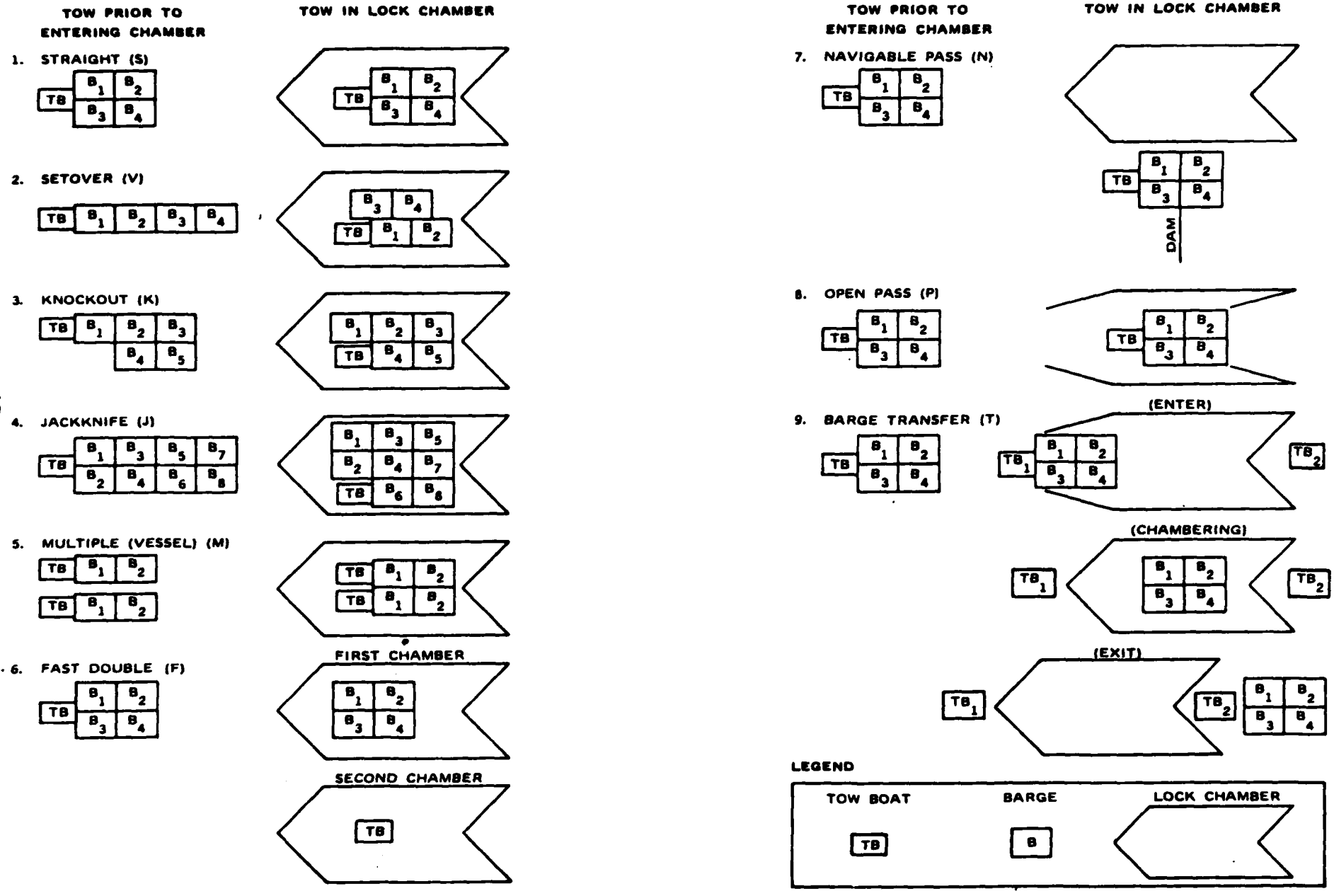


Figure C-3 Lockage Types

Table C-1
Examples

Tow Description	Lockage Type	Lockage Cuts
A tow with four barges in a single lockage type cycle (Straight Single Lockage).	S	1
A tow with twelve barges where nine barges are served in one cycle and the towboat and remaining three barges are served in a second cycle (Straight Double Lockage).	S	2
A tow with five barges is served in one lockage cycle but this required that the towboat be separated from the barges and placed in the location of the missing barge (Single Knockout Lockage).	K	1
An integrated tow with four barges is served in one lockage cycle but this requires that the towboat with one barge be separated from the remaining barges and "set over" in the lock chamber (Single Setover Lockage).	V	1
Two tows, one with two barges and one with one barge are locked through together in a single lockage cycle (Multiple Single Lockage).	M	1
A tow containing two barges, a light boat and five recreational vessels are all served in one cycle (Straight Single Lockage).	S	1

8. Vessel Type

Check the vessel type for the vessel listed in the vessel name field. Occasionally, locks serve light boats or recreational vessels when a cargo carrying commercial vessel is being served. The Lockage Log and Vessel Log do not have to be completed for these other vessels but the presence of these other vessels should be recorded.

9. Number of Light Commercial Boats

If light commercial boats, towboats which are neither pushing barges nor carrying cargo, are being locked through with a tow or another vessel for which the Lockage Log is being completed, then simply record the number of light commercial boats.

10. Number of Recreational Vessels

Record the number of recreational vessels utilizing the chamber together with another vessel for which the Lockage Log is being completed.

Table C-2 provides examples of various situations, the number of forms required and the number of vessels which should be recorded in each category.

Table C-2

Examples

Description	Lockage Logs and Vessel Logs Completed	No. of Other Vessels Recorded: Light Commercial Vessels	No. of Other Vessels Recorded: Recreational Vessels
1 towboat with two barges 1 towboat with no barges 5 recreational vessels	1	1	5
2 towboats with two barges each 3 recreational vessels	2		3 (On one lockage log only. Record 0 on the other)
2 towboats with no barges	1	1	
1 towboat with no barges 5 recreational vessels	1		5
5 recreational vessels only	1		4
1 light boat 1 recreational vessel	1		1

11. Number of Passengers

Record the approximate number of passengers on the vessels being locked through. Do not record the number of passengers on "passenger vessels" or "ferries." The passengers on these vessels are recorded on the Vessel Log.

12. Lockage Times

One or two lines must be completed for all lockages. The first line must be completed for all lockage types (Straight, Setover, etc.). The second line is only completed when the number of cuts is greater than one, that is, when the number of cuts is 2, 3, or more. This second line contains only the times for the last cut of a multiple cut lockage. That is, for a double, the second line would contain the times for the second cut. For quadruple, the second line would contain the time for the fourth cut.

13. Exit Type

Check the exit type which represents the vessel exiting the lock. See figure C-4.

ENTRY AND EXIT TYPES

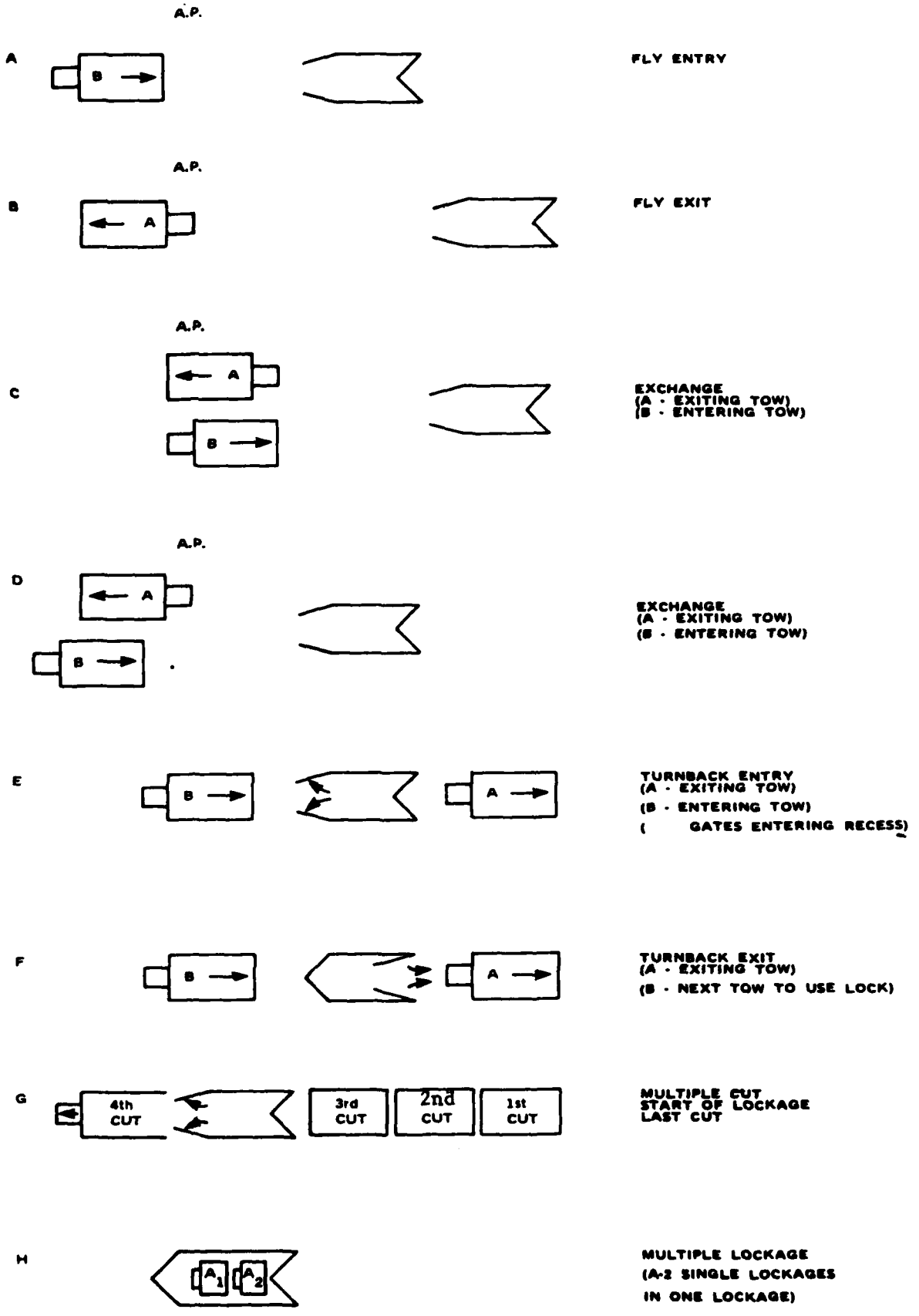


Figure C-4 Entry and Exit Types

14. Arrival Time

This is the time when the vessel is ready to use the lock, regardless of whether the lock is ready to serve the vessel. This time, which will be reported by radio by the tow captain or pilot, is generally the time, the order of turn, in which the vessel will be served. It should be noted that tows may call the lock when they are still several miles away or when they still have to drop-off or pick-up barges. Since the tow is not ready to use the lock in either of these instances, this call-in time should not be considered the Arrival Time and the pilot or captain should be requested to call-in again when he is ready to use the lock. Record the arrival as follows:

a. Date - Record the month and day of the vessel's arrival.

b. Time - Record the hour and minute of the vessel's arrival.

Several issues make the identification of Arrival Time easier to describe than to actually accomplish in the field. Tows can and do call in long before arriving at the lock, in hope of gaining advantage in the assignment of order of turn. Because of bends in the river or other obstructions to vision, lock crews may have no way to check the true position of a tow that has called in. Although order of turn is not a central issue for PMS, as it is not related to utilization of lock capacity, the computation of artificially long tow waiting times could be confusing; therefore, lock crews should attempt to validate the position of a tow calling in before entering the time. When there is a queue, the lock crew may request that a tow already in the waiting area advise the lock crew when the calling-in tow comes into view. As there is a very healthy competitive spirit among captains and pilots regarding order of turn at locks, it could be anticipated that they would only be too happy to cooperate in this manner.

When there is a long queue at a lock, waiting times will be somewhat overestimated since the Arrival Time is recorded when the tow is still some distance from the Approach Point. If there were no queue, the tow would not have its Arrival Time recorded until it reached the vicinity of the Approach Point. To account for this factor, lock staff may at their discretion:

- estimate the distance between the Approach Point and the location where the tow is waiting;
- estimate the travel time to traverse this distance at a speed of 5 mph to 6 mph; and
- record a modified Arrival Time which is based on the clock time when the tow moors at the end of the queue plus the estimated travel time.

15. Start of Lockage

This is the time when the lock is ready to serve the incoming vessel. It is recorded in hours and minutes for:

- every type of lockage;
- the first and last entry of multiple cut lockage; and

- each vessel in a multiple vessel lockage.

The time when a lockage starts, that is, when the lock can begin serving a vessel, is dependent on the preceding events. The types of events that can occur, and hence the meaning of "Start of Lockage" are described below. Figure C-4 should be used with this explanation.

The Approach Point (AP) referred to in figure C-4 is designated by a marker which the Corps has placed at the closest point to the lock at which one tow can safely pass another tow going in the opposite direction. If the person recording the times cannot accurately observe the Start of Lockage time because events take place too far from the locks, the appropriate information should be requested by radio from the vessel pilot or captain. The "Start of Lockage" is dependent on the entry type: fly, exchange or turnback.

a. Fly Entry (if the lock has been idle and the inbound vessel directly enters the chamber)

The Start of Lockage is the time at which the bow of the inbound tow is abreast of the Approach Point. Thus, in figure C-4 (A), the inbound vessel has reached the Approach Point (AP) and since the lock is idle, the time it reaches AP is its Start of Lockage.

b. Exchange Entry (if the inbound vessel to the chamber passes an outbound vessel from the chamber)

The Start of Lockage is the earliest of the following two times:

- when the stern of the outbound tow is abreast of the bow of the inbound tow; or

- when the stern of the outbound tow is abreast of the Approach Point.

In figure C-4 (C), tow A is departing and tow B is starting its lockage. Since the bow of B is abreast of the stern of A prior to A passing the Approach Point, this is the Start of Lockage for B. Figure C-4 (D) illustrates an exchange entry in which the bow of the outbound vessel (A) passes the Approach Point prior to the bow of the incoming vessel (B) passing A's stern.

c. Turnback Entry (if the preceding event is a lockage in which no tows were served)

The Start of Lockage is the time at which the gates are fully in their recesses and the vessel may safely enter the chamber. Figure C-4 (E) shows a Turnback Entry where the outgoing (A) and the incoming (B) vessels are both going in the same direction. After vessel A left the chamber, the chamber was turned back to receive vessel B. The Start of Lockage time for B occurs when the gates are in their recesses and B may safely enter the chamber. The Start of Lockage for the last cut of multiple cut lockages is recorded as for a turnback entry; the prior cut is considered to be the departing tow (A in figure C-4 (E)) and the last cut is considered to be the incoming tow in the same direction (B in figure C-4 (E)).

The Start of Lockage for multiple vessel lockages is determined separately for each vessel. Each vessel should fall into one of the three entry types described above, thereby defining its Start of Lockage. The record number should be assigned at this time.

16. Bow Over Sill

Bow over Sill occurs when the bow of the inbound vessel is abreast of the lock gates and it is in a position parallel to the guide wall to enter the lock chamber. This time is recorded in hours and minutes.

17. End of Entry

The End of Entry is the earliest of the following two times:

- o the tow or the complete entering cut is secured within the lock and the gates are clear; or
- o the closing of the gates has been initiated.

18. Start of Exit

The Start of Exit is the time when the exit gates are fully in their recesses and the horn has been sounded. If the vessel starts its exit prior to the gates being fully opened, the Start of Exit time occurs when the bow of the existing vessel crosses the gate's sill. This time is recorded in hours and minutes.

19. End of Lockage

The End of Lockage occurs when the lock has completed serving a vessel or cut and can be dedicated to another vessel or cut. It is recorded for:

- o every type of lockage;
- o the first and last cuts of a multiple cut lockage; and
- o each vessel in a multiple vessel lockage.

The time when a lockage ends, End of Lockage, is dependent on the exit type: fly, exchange or turnback.

a. Fly Exit (if the lock will be idle following the departure of the outgoing vessel, that is, no vessels are waiting to be served).

The End of Lockage is when the stern of the vessel is abreast of the Approach Point (AP). In figure C-4 (B), the departing vessel (A) has reached the Approach Point (AP) and thus has completed its lockage.

b. Exchange Exit (if the vessel inbound to the chamber passes a vessel out-bound from the chamber).

The End of Lockage is the earliest of the following two times:

- o when the stern of the outbound tow is abreast of the bow of the inbound tow; or
- o when the stern of the outbound tow is abreast of the Approach Point.

In figure C-4 (C) outgoing vessel A is passing incoming vessel B, so that the End of Lockage is when the stern of A is abreast of the stem of B. Figure C-4 (D) illustrates the departing vessel A reaching the Approach Point (AP) prior to its stern passing the bow of the inbound vessel B; hence its End of Lockage is defined as the time when the stern of vessel A is abreast of the Approach Point (AP).

c. Turnback Exit (if the next event is a lockage in the same direction which requires that the lock be turned back with no vessels in the chamber).

The End of Lockage for a Turnback Exit occurs when the departing vessel or cut has cleared the lock gates and the lock gates may begin to close. In figure C-4 (F), the incoming vessel B is the next vessel to use the lock chamber. Outgoing vessel A's End of Lockage occurs when it has sufficiently cleared the lock gates that they may begin to close. Turnback Exits occur between cuts of multiple cut lockages or between lockages serving vessels traveling in the same direction.

The End of Lockage for multiple vessel lockages is determined separately for each vessel. Each exiting vessel should fall into one of the three exit types described above, thereby defining its End of Lockage.

20. Stall or Interference

Whenever navigation through the lock is suspended or impeded or the lock itself becomes inoperable between lockages, this section of the form should be completed. If navigation is only slowed but not suspended, only the Stall Code is recorded. If navigation is suspended, both the Stall Code and the period during which navigation is suspended should be recorded. Whenever the lock is inoperable between lockages, the times should be recorded with the subsequent lockages. Only one Stall Code should be used for any given stall; choose that Stall Code which most clearly describes the situation. See Appendix J for codes and description.

21. Begin Stall

Record the date and time when navigation is suspended because of any of the stall conditions. Only record this time when navigation is suspended, not when it is being impeded.

22. End Stall

Record the date and time when navigation is resumed after a stall condition. Only record this time when navigation was suspended, not when it was only interfered with.

23. Remarks

Use this box to report unusual circumstances and to explain the situation if an "other" box was checked off on this Lockage Log. If additional space is needed for the remarks, use the reverse side of the Lockage Log.

Figure C-5 contains a sample of a completed Lockage Log for the following situation:

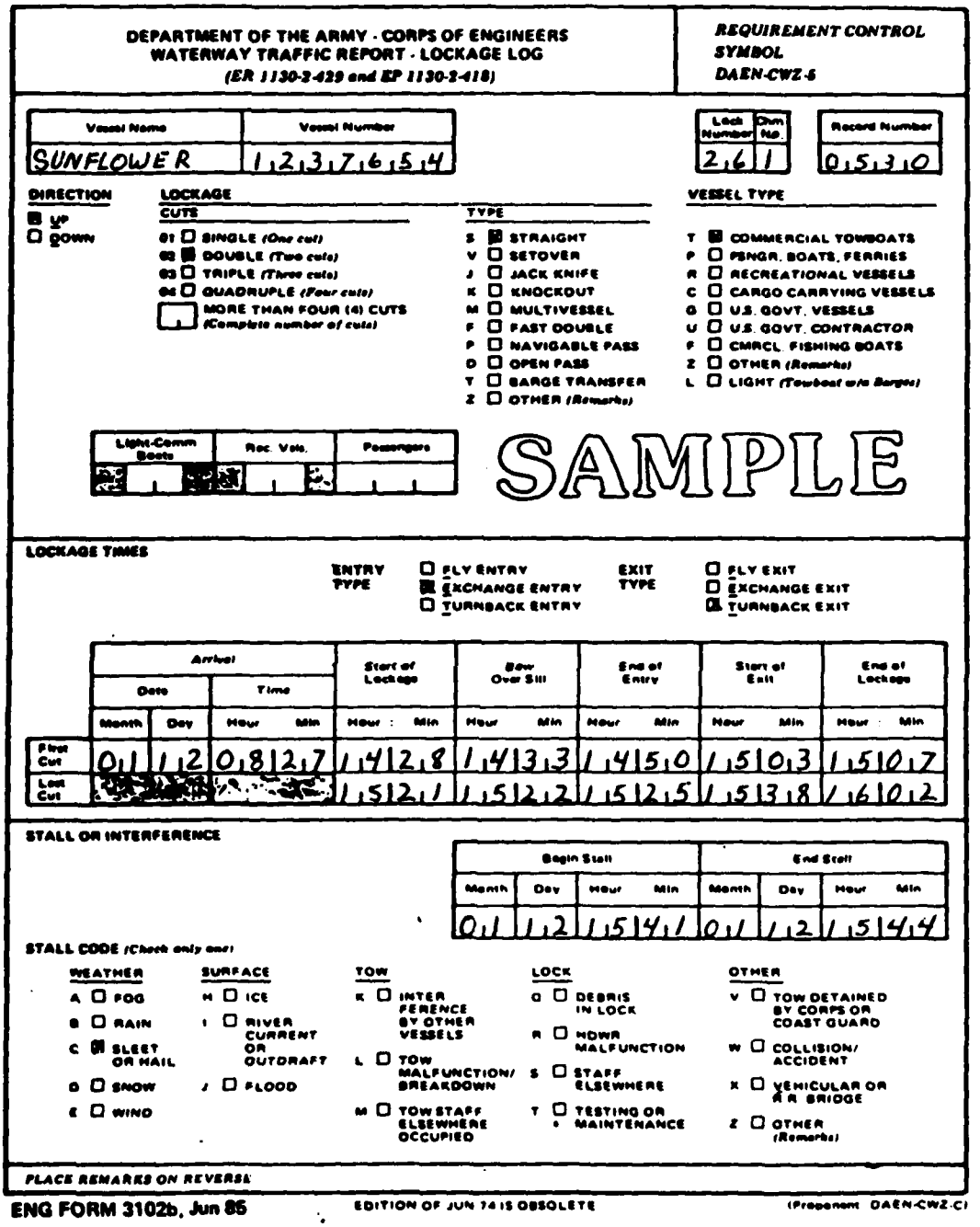
Sunflower - Waterway Traffic Report 0530

The tow powered by the towboat Sunflower radioed in at 8:27 A.M. on January 12 that she was ready to join the queue at Locks and Dam No. 26. She was going upriver pushing twelve barges (see the Sample completed Vessel Log, figure C-6, and Detailed Vessel Log, figure C-7).

Since the tow was longer than the lock chamber, a straight double (two cuts) lockage was required.

The Sunflower was informed that she would enter the chamber when the Suzy Jones, a downbound tow, exited the locks. At 14:28 (2:28 P.M.) the two vessels passed within the approach point (Start of Lockage for an Exchange Entry). The Record Number 0530 was assigned at this time. At 14:33 her bow crossed the sill and at 14:50, after the first cut was uncoupled and the Sunflower backed out of the chamber, the gates began to close. Following the filling of the chamber, the upper gates were opened, at 15:03 the gates were in their recesses and the lock's horn sounded indicating that the first cut could be taken from the chamber. At 15:07 the first cut was completely removed from the chamber and the lock gates started to close for the "turnback" or "swingaround" lockage to lock the second cut. This completes the first cut's lockage.

At 15:21 the turnback was completed and the lock was ready for the second cut. At 15:22 the bow crossed the sill. At 15:25 the second cut was secured in the chamber and the lock gates started to close. Following the filling of the chamber, the upper lock gates were opened completely, allowing the Sunflower to start exiting at 15:38. From 15:41 to 15:44 the sleet stopped the Sunflower from recoupling to the first cut. Finally after the recoupling was completed, the Sunflower left the lock chamber completely. The next vessel, to use the lock, (the Cindy Sue), was going in the same direction. The lock was started to be turned back at 16:02 when the Sunflower was sufficiently clear of the chamber. Hence, 16:02 is the End of Lockage time for the Sunflower.



DEPARTMENT OF THE ARMY - CORPS OF ENGINEERS
WATERWAY TRAFFIC REPORT - LOCKAGE LOG
(ER 1130-2-429 and EP 1130-2-418)

REQUIREMENT CONTROL SYMBOL
DAEN-CWZ-5

Vessel Name	Vessel Number
SUNFLOWER	1,2,3,7,6,5,4

Lock Number	Chm No.	Record Number
2,6	1	0,5,3,0

DIRECTION
■ UP
□ DOWN

LOCKAGE CUTS
01 □ SINGLE (One cut)
02 ■ DOUBLE (Two cuts)
03 □ TRIPLE (Three cuts)
04 □ QUADRUPLE (Four cuts)
□ MORE THAN FOUR (4) CUTS (Complete number of cuts)

TYPE
S ■ STRAIGHT
V □ SETOVER
J □ JACK KNIFE
K □ KNOCKOUT
M □ MULTIVESSEL
F □ FAST DOUBLE
P □ NAVIGABLE PASS
O □ OPEN PASS
T □ BARGE TRANSFER
Z □ OTHER (Remarks)

VESSEL TYPE
T ■ COMMERCIAL TOWBOATS
P □ PSNGR. BOATS, FERRIES
R □ RECREATIONAL VESSELS
C □ CARGO CARRYING VESSELS
G □ U.S. GOVT. VESSELS
U □ U.S. GOVT. CONTRACTOR
F □ CMRCL FISHING BOATS
Z □ OTHER (Remarks)
L □ LIGHT (Towboat w/o Barges)

Light-Comm Boats	Rec. Vels.	Passengers
1	1	1

SAMPLE

LOCKAGE TIMES

ENTRY TYPE
□ FLY ENTRY
■ EXCHANGE ENTRY
□ TURNBACK ENTRY

EXIT TYPE
□ FLY EXIT
□ EXCHANGE EXIT
■ TURNBACK EXIT

	Arrival Date Month	Arrival Date Day	Arrival Time Hour	Arrival Time Min	Start of Lockage Hour	Start of Lockage Min	Bow Over Sill Hour	Bow Over Sill Min	End of Entry Hour	End of Entry Min	Start of Exit Hour	Start of Exit Min	End of Lockage Hour	End of Lockage Min
First Cut	0,1	1,2	0,8	2,7	1,4	2,8	1,4	3,3	1,4	5,0	1,5	0,3	1,5	0,7
Last Cut	[illegible]		[illegible]		1,5	1,1	1,5	2,2	1,5	2,5	1,5	3,8	1,6	0,2

STALL OR INTERFERENCE

Begin Stall Month	Begin Stall Day	Begin Stall Hour	Begin Stall Min	End Stall Month	End Stall Day	End Stall Hour	End Stall Min
0,1	1,2	1,5	4,1	0,1	1,2	1,5	4,4

STALL CODE (Check only one)

WEATHER
A □ FOG
B □ RAIN
C ■ SLEET OR HAIL
D □ SNOW
E □ WIND

SURFACE
H □ ICE
I □ RIVER CURRENT OR OUTDRAFT
J □ FLOOD

TOW
K □ INTERFERENCE BY OTHER VESSELS
L □ TOW MALFUNCTION/ BREAKDOWN
M □ TOW STAFF ELSEWHERE OCCUPIED

LOCK
Q □ DEBRIS IN LOCK
R □ HDWR MALFUNCTION
S □ STAFF ELSEWHERE
T □ TESTING OR MAINTENANCE

OTHER
V □ TOW DETAINED BY CORPS OR COAST GUARD
W □ COLLISION/ ACCIDENT
X □ VEHICULAR OR A R BRIDGE
Z □ OTHER (Remarks)

PLACE REMARKS ON REVERSE

ENG FORM 3102b, Jun 85 EDITION OF JUN 74 IS OBSOLETE (Proponent DAEN-CWZ-C)

Figure C-5 Sample Completed Lockage Log

VESSEL LOG

The Vessel Log (ENG Form 3102c), see Appendix B, is completed only for commmercial tows and cargo-carrying vessels.

Title 33, Code of Federal Regulations, Part 207, (26 Stat. 766) provides the Corps with authority to collect statistical data on cargo and passengers from the vessel as requested on the Vessel Log. The item numbers on the Vessel Log provide an easy reference between the form and this manual.

1. Lock Number

The two-digit number assigned to this lock is usually preprinted on the Vessel Logs completed by the lock staff. If it is not, record the number. Appendix J contains the list of numbers assigned to each lock on the inland waterways.

2. Chamber Number

The one-digit chamber number is usually preprinted on the Vessel Logs completed by the lock staff. If it is not completed, record the one-digit number assigned to this chamber. If the lock has only one chamber, then record a "1" in this item. Appendix J contains the codes assigned to multiple chambered locks.

3. Record Number

Record the four-digit record number for this form. This number should be the same as the record number on the Lockage Log describing the vessel's transit through the lock. This number serves as the link between the Lockage Log and the Vessel Log. If this form is completed prior to the Start of Lockage time (see Lockage Log), do not fill in the record number until the Start of Lockage has occurred and the Lockage Log has been assigned a record number.

Example: The vessel Log of the "Sunflower" is being completed prior to its Start of Lockage. The Record Number is not completed at this time. Later the Sunflower started its lockage and the Lockage Log Record Number was 1286. Record 1286 for the Vessel Log Record Number.

4. Assisting Vessel

Often a tow is too large to be served completely in one lockage cycle. This requires that the tow be broken into segments or cuts. Occasionally, a towboat other than the towboat used in the river reach powers one of the cuts completely through a lockage cycle. The towboat which powered the tow in the river reach is called the "Prime Mover." The additional towboat powering one of the cuts is called the "Assisting Vessel." Both the Lockage Log and Vessel Log are completed for the Prime Mover. To relate data gathered from the two vessels, the Assisting Vessel's name and number are recorded on the Prime Mover's Vessel Log.

a. The Assisting Vessel data is collected for any of the following circumstances:

(1) Independently powered cut - Lockages in which:

o the tow decouples prior to Start of Lockage; and

o an "Assisting Vessel" powers one of the cuts through the lock; and

o the tow recouples after the End of Locakage for all cuts.

(2) Barge Transfer - Lockage in which:

o the Prime Mover when exiting the lock is different from the Prime Mover entering the lock.

b. The Assisting Vessel data is recorded on the Prime Mover's Vessel Log as follows:

(1) Independently powered cut - Record the data for the Assisting Vessel.

(2) Barge Transfer - Record the EXITING Prime Mover as the "Assisting Vessel" and the ENTERING Prime Mover as the "Vessel."

When a switchboat or helper boat assists a tow entering or exiting the chamber, but does not independently power a cut through the lock, the assistance is recorded under "Vessel Assists," and is not recorded under Assisting Vessel.

5. Assisting Vessel Name

Record the name of the Assisting Vessel.

Example: If the "Cindy Sue" powered one of the cuts through the lock of the tow being pushed by the "Sunflower," record "Cindy Sue" in the Assisting Vessel Name field and "Sunflower" in the Vessel Name field (6).

6. Assisting Vessel Number

Record the seven-digit vessel identification number from the Vessel File. See the Vessel Number field (7) for complete instructions on obtaining this number.

7. Vessel Name

Record the vessel name, or the name of the "Prime Mover" vessel.

8. Vessel Number

Record the seven-digit vessel identification number from the Vessel Index File. If an identification number for a specific vessel cannot be located in the Vessel Index File, contact the District Office.

Occasionally, two vessels will have the same name. In this case, obtain the name of the owner before looking up the vessel number in the Vessel Index File. Although two vessels might have the same name, their numbers will be different and can be correctly determined based on the vessel's owner.

Example: Suppose that the Vessel Index File indicates that the Sunflower's number is 1237654, then the Vessel Number is recorded as 1237654.

9. Controlling Flotilla Dimensions

The controlling flotilla dimensions consist of the length, width and draft of the tow or vessel in the river reach while approaching the lock. The towboat is considered part of the overall dimensions of the flotilla.

a. Length - Record the length of the entire tow (in the river reach, not in the lock chamber) in feet. If the towboat extends beyond the barges, be sure to include its length. If the tow is irregularly shaped, record the longest measurement.

b. Width - Record the width of the entire tow (in the river reach, not in the chamber) in feet. If the towboat extends beyond the barges, be sure to include its width. If the tow is irregularly shaped, record the widest dimension.

c. Maximum Barge Draft - Record the maximum barge draft of the tow in feet and inches.

10. Number of Barges

The total number of loaded barges and the total number of empty barges should be recorded. These two numbers, loaded and empty barges, should account for all barges in the tow.

a. Loaded - Record the total number of loaded barges in the tow. Partially filled barges should be counted as "loaded."

b. Empty - Record the total number of empty barges in the tow.

11. Did Tow Stop Since Its Last Lockage?

One of the following should be checked:

No = Tow <u>has not</u> stopped for more than 30 minutes since its last lockage.

Yes = Tow <u>has</u> stopped for more than 30 minutes (e.g., to fuel, pick up or drop off barges) since its last lockage.

In completing this entry, do not consider stops made by the tow since joining the queue at a lock.

12. Vessel Assists

If the vessel was assisted into, through, or out of the lock, check up to two of the codes as applicable. If no assists were provided, then check "NONE." See Appendix J for codes.

13. Number of Passengers

If the vessel is carrying passengers, record the number of passengers. Do not count crew members as passengers. This item is intended for commercial passenger carrying vessels such as tour boats and ferries. It also applies to cargo carrying vessels or tows which are carrying passengers.

Example: The tour boat, Greenwich, is carrying five hundred twenty-six passengers and a crew of twenty-five. Record 5,2,6 in this field.

14. Commodities Carried

Data is recorded regarding the commodities carried in the tow and the barge types used to transport these commodities. The barges in the tow are categorized by type, number of barges, and commodity carried. Each combination of a barge type and a commodity is recorded on a separate row (the example will illustrate the meaning of this). All barges in the tow should be accounted for (including empty barges).

For self-propelled cargo carrying vessels, one line should be completed for each commodity carried.

a. Barge Type - Record the code for this barge type. See Appendix J for type.

b. Number of Barges - Record the number of barges in this category.

c. Commodity Name - For each classification of barges, record the name of the commodity (e.g., WHEAT, COAL) transported on this classification of barges. The list of commodity names to be used is presented in Appendix J. Every effort should be made to record this data as accurately as possible. For example, if the pilot or captain reports that he is transporting "grain," the lock staff should further query the pilot or captain to determine which grain he is carrying (e.g., corn, wheat, soybeans, or other). If no commodity information whatsoever can be obtained from the pilot or captain, record "UNKNOWN." If the barges are empty, record "EMPTY."

d. Commodity Code - Record the commodity code for the product specified in "Commodity Name" above. The codes are found in the "Commodity Codes" (Appendix J). The Commodity Code is constructed at two levels of detail - with the left digit designating the general commodity (for example - Chemicals and Related Products) and the right digit designating the specific commodity (for

example - Nitrogenous Chemical Fertilzers). Record the code for the commodity to the greatest detail possible. If you cannot identify the exact nature of the commodity, left digit, and zero (0) for the right digit. If the commodity cannot be found on this list or if it is "UNKNOWN", record "99" for this item. If the barges are empty, record "01" in this entry.

e. Tons of Cargo - Record the total tonnage of this commodity being transported by this group of barges. If this tonnage is now known, code "99,999." Barrels of a liquid commodity should be converted to a tonnage estimate.

15. Remarks

Place remarks in this box, especially concerning situations which are not covered by the description of the various data items.

An example of a completed Vessel Log describing the following vessel and circumstances is presented in figure C-6.

The Sunflower tow consists of 12 barges, 7 loaded (L) and 5 empty (E) arranged in 4 rows of 3 barges each with the towboat (TB) alone in the 5th row. Its controlling dimensions are 891 feet long, 150 feet wide and 8 feet 6 inches of draft. It has a variety of commodities and barge types as follows:

DEPARTMENT OF THE ARMY - CORPS OF ENGINEERS
WATERWAY TRAFFIC REPORT - VESSEL LOG
(ER 1130-2-429 and EP 1130-2-418)

OMB APPROVAL NO. 0702-0001
Expires 31 Aug 87
RCS DAEN-CWZ-S

INSTRUCTIONS

33 USC 554-555 provides that users of waterways will furnish statistical data on cargo and passengers upon request. The owner, master, pilot or other officer of the vessel must complete the applicable items below and return this report. Your cooperation and assistance in collecting these data are appreciated.

1 Lock Number	2 Chbr	3 Record Number	4 Assisting Vessel Name	5 Assisting Vessel Number
26	1	1286	Cindy Sue	4567321

6 Vessel Name	7 Vessel Number	Controlling Flotilla Dimensions (with towboat): 8 Length (Feet)	9 Width (Feet)	10 Maximum Barge Draft: Feet	Inches	11 Number of Barges: Loaded	Empty
SUNFLOWER	1237654	0880	120	08	06	07	05

12 Did Tow Stop Since Its Last Lockage? ☒ YES ☐ NO

13 VESSEL ASSISTS *(check no more than two (2))*

0 ☒ NONE

A ☐ BOW THRUSTER
B ☐ SB-ENTRY
C ☐ SB-EXIT
D ☐ SB-ENTRY & EXIT
E ☐ SB-ENTRY & LOCKED THRU
F ☐ SB-LOCKED THRU & EXIT
G ☐ SEPARATE SB ENTRY & EXIT
H ☐ SB TO WALL
I ☐ BOW THRUSTERS & SB
J ☐ TOW HAULAGE
K ☐ HYDRAULIC ASSIST*
L ☐ EXTRA PERSONNEL
Z ☐ OTHER *(Remarks)*

14 Number of Passengers

*This procedure can only be used where authorized

SAMPLE

16

Barges a Type	b Number	Commodity c Name	d Code	e Total Tons of Cargo	Barges a Type	b Number	Commodity c Name	d Code	e Total Tons of Cargo
J	014	EMPTY	011	0					
S	011	EMPTY	011	0					
S	012	WHEAT	812	2,8010					
J	012	WHEAT	812	2,7010					
J	013	COAL	110	3,0510					

BARGE CLASSIFICATION

TYPE	NAME	SIZE
R	Small Regular Barge	175x26
J	Regular/Long Jumbo Barge	195 200x35
S	Super Jumbo Barge	250 290x42 50
B	Integrated Chemical & Petroleum	all sizes
M	Motorized	all sizes
C	Cargo Vessels	all sizes
T	Tanker Vessels	all sizes
Z	Other *(Remarks)*	all sizes

16 *PLACE REMARKS ON REVERSE*

17 DATE OF THIS REPORT

18 SIGNATURE OF PERSON SUPPLYING THESE DATA

ENG FORM 3102c, Jun 85 EDITION OF JUN 74 IS OBSOLETE (Proponent: DAEN-CWZ-C)

Figure C-6 Sample Completed Vessel Log

L 280x50 wheat	L 280x50 wheat	E 280x50
L 195x35 wheat	L 195x35 wheat	E 195x35
L 195x35 coal	L 195x35 coal	E 195x35
E 195x35	L 195x35 coal	E 195x35

TB
26x95

a. Empty barges

- one 280 x 50 barge - see line 2 of data time 15 (figure C-6).
- four 195 x 35 barges - see line 1 of data item 15 (figure C-6).

b. Loaded barges:

- two 280 x 50 barges carrying 1400 tons of wheat each - see line 3 of data item 15 (figure C-6).
- two 195 x 35 barges carrying 1350 tons of wheat each - see line 4 of data item 15 (figure C-6).
- three 195 x 35 barges carrying 1350 tons of coal - see line 5 of data item 15 (figure C-6).

Note that all twelve barges, both loaded and empty, are accounted for and that each barge/commodity combination is listed separately. For example, wheat is carried by both 280 x 50 and 195 x 35 barges, and requires a separate line for each barge type, and coal is carried by 195 x 35 barges. Also notice that the tons of cargo in each category represent the total tonnage in that category, not the tons per barge. Thus, for two barges of the same type carrying 1400 tons each, 2800 tons is recorded.

DETAILED VESSEL LOG

At the direction of the District Office - and with the written approval of the Water Resources Support Center* - the Detailed Vessel Log (ENG Form 3102d) can be used instead of the Vessel Log. The Detailed Vessel Log (Appendix B), provides for the collection of more comprehensive data than does the Vessel Log.

A separate Detailed Vessel Log should be completed for each vessel for which a Lockage Log is prepared.

Items one (1) through thirteen (13) of the Detailed Vessel Log are the same as the corresponding items on the Vessel Log. The instructions for these items are therefore the same as the corresponding items on the Vessel Log.

14. Light Commercial Boats

When light commercial boats are locked through with another vessel for which a Lockage Log and a Detailed Vessel Log are completed, their names and identification numbers are recorded.

a. Vessel Name - Record the vessel name of each light boat locking through.

b. Vessel Number - Record the vessel identification number of each light boat locking through. The vessel identification number may be obtained from the Vessel Index File.

15. Commodities Carried

Each barge making up the tow is to be recorded on a separate line. All barges, both loaded and empty, must be recorded.

For self-propelled vessels--either cargo-carrying or tankers--use a separate line on the form for each cargo type.

a. Barge Identification Number - Record the seven-digit identification number assigned to the barge; this number should be available in the Vessel Index File. It is also generally found on a small metal plate attached to the barge. This may <u>not</u> necessarily be the large number painted on the barge. Often, towing companies assign and paint their own number on the barges; the towing company barge numbers are <u>not</u> to be recorded.

b. Barge Type - Record the code for the type of barge using the codes in Appendix J.

---

*Approval to utilize the Detailed Vessel Log must be obtained in writing from CDR WRSC (WRSC-IWR), Casey Building, Ft. Belvoir, VA 22060. A request to utilize the Detailed Vessel Log should be accompanied by a memorandum indicating: (1) the justification for collecting this additional data, and (2) the time period during which the supplemental data is to be collected.

c. Origin Port - The origin port (starting point) and destination port (ending point) for each barge is to be recorded. Record the port name of the barge's origin.

d. Destination Port - Record the port name of the barge's destination.

e. Commodity Name - For each barge, record the name of the commodity transported in that barge. If a single barge is transporting several commodities, record the commodity constituting the greatest tonnage.

The list of commodity names to be used is presented in Appendix J. Every effort should be made to record this data in as much detail as possible. For example, if the pilot or captain reports that he is transporting "grain," the lock staff should further query the pilot or captain to determine which grain he is carrying (e.g., corn, wheat, soybeans, or other). If no commodity information whatsoever can be obtained from the pilot or captain, record "UNKNOWN." If the barges are empty, record "EMPTY."

f. Commodity Code - Record the commodity code for the product specified in "Commodity Name" above. The codes are found in the "Commodity Codes" (Appendix J). The Commodity Code is constructed at two levels of detail - with the left digit designating the general commodity (for example - Chemicals and Related Products) and the right digit designating the specific commodity (for example - Nitrogenous Chemical Fertilizers). Record the code for the commodity to the greatest detail possible. If you cannot identify the exact nature of the commodity, record the correct code for the general commodity for the left digit and zero (0) for the right digit. If the commodity cannot be found on this list or if it is UNKNOWN, record "99"; if the barges are empty, record "01."

g. Hazardous Commodity - If the commodity is hazardous, place a one (1) in this column, otherwise leave it blank. A list of commodities that have been designated hazardous will be distributed when use of the Detailed Vessel Log is authorized.

h. Tons of Cargo - Record the total tonnage of cargo the barge is carrying.

16. Remarks

Describe any unusual circumstances in this box. If an "other" category has been indicated elsewhere on the Detailed Vessel Log, describe the situation here. If additional room is needed, use the back of the Detailed Vessel Log.

An example of a completed Detailed Vessel Log describing the following tow and circumstances, is presented in figure C-7.

The Sunflower tow consists of 12 barges, 7 loaded (L) and 5 empty (E) arranged in 4 rows of 3 barges each with the towboat (TB) alone in the 5th row. Its controlling dimensions are 891 feet long, 150 feet wide and 8 feet 6 inches of draft. It has a variety of commodities and barge types as follows:

L	L	E
280x50	280x50	280x50
wheat	wheat	
1384259	9424235	2231370

L	L	E
195x35	195x35	195x35
wheat	wheat	
6851329	6951257	3261213

L	L	E
195x35	195x35	195x35
coal	coal	
9027572	2822309	2719216

E	L	E
195x35	195x35	195x35
	coal	
4224610	5790935	0973732

TB
26x95

TB = Towboat
L = Loaded Barges
E = Empty Barges

a. Empty barges:

- one 280 x 50 barge - see line 9 of data item 16 (figure C-7).
- four 195 x 35 barges - see lines 4, 10, 11, and 12 of data item 16 (figure C-7).

b. Loaded barges:

- two 280 x 50 barges carrying 1400 tons of wheat each - see lines 1 and 5 of data item 16 (figure C-7)
- two 195 x 35 barges carrying 1350 tons of wheat each - see lines 2 and 6 of data item 16 (figure C-7)
- three 195 x 35 barges carrying 1350 tons of coal - see lines 3, 7 and 8 of data item 16 (figure C-7)

Note that all barges, loaded and empty are accounted for.

DEPARTMENT OF THE ARMY · CORPS OF ENGINEERS
WATERWAY TRAFFIC REPORT · DETAILED VESSEL LOG
(ER 1130-2-429 and EP 1130-2-418)

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INSTRUCTIONS

33 USC 554-555 provides that users of waterways will furnish statistical data on cargo and passengers upon request. The owner, master, pilot or other officer of the vessel must complete the applicable items below and return this report. Your cooperation and assistance in collecting these data are appreciated.

1 Lock Number	2 Otr	3 Record Number
216	1	112816

4 Attending Vessel Name	5 Assisting Vessel Number
CINDY SUE	

6 Vessel Name	7 Vessel Number
SUNFLOWER	1123176154

Controlling Flotilla Dimensions (with towboat)		10 Maximum Barge Draft		11 Number of Barges	
8 Length (Feet)	9 Width (Feet)	Feet	Inches	Loaded	Empty
010810	11210	018	016	017	015

12 Did Tow Stop Since Its Last Lockage? ☐ Yes ☑ No

13 VESSEL ASSISTS (Check no more than two (2))

0 ☑ None

A ☐ Bow Thruster
B ☐ SB–Entry
C ☐ SB–Exit
D ☐ SB–Entry & Exit
E ☐ SB–Entry & Locked Thru
F ☐ SB–Locked Thru & Exit
G ☐ Separate SB Entry & Exit
H ☐ SB to Wall
I ☐ Bow Thrusters & SB
J ☐ Tow Haulage
K ☐ Hydraulic Assist*
L ☐ Extra Personnel
Z ☐ Other (Remarks)

*This procedure can only be used where authorized.

14 Number of Passengers: 15216

15 Light Commercial Boats ("Lights", "Thru Passes")

a Vessel Name	b Vessel Number	a Vessel Name	b Vessel Number

SAMPLE

16 Commodities Moved

Barge a Identification Number	b Type	c Origin	d Destination	Commodity e Name	f Code	g Haz Com	h Tons of Cargo
13891912519	S	Memphis	Davenport	Wheat	812		11141000
48513113219	J	Memphis	Davenport	Wheat	812		11131510
90227151712	J	Cairo	St. Paul	Coal	110		11131510
92219161110	J	St. Louis	Canton	Empty	011		1111 10
94191219121315	S	Memphis	Davenport	Wheat	812		11141000
69151112151317	J	Memphis	Davenport	Wheat	812		11131510
28121213109A	J	Cairo	St. Paul	Coal	110		11131510
57891019131315	J	Cairo	St. Paul	Coal	110		11131510
21213111317110	S	St. Louis	Canton	Empty	011		1111 10
31216111211113	J	St. Louis	Canton	Empty	011		1111 10
21781912111116	J	St. Louis	Canton	Empty	011		1111 10
09171317131312	J	St. Louis	Canton	Empty	011		1111 10

17 PLACE REMARKS ON REVERSE

18 DATE OF THIS REPORT

19 SIGNATURE OF PERSON SUPPLYING THESE DATA

ENG FORM 3102d, Jun 85 EDITION OF 1 JUN 74 IS OBSOLETE (Proponent DAEN-CWZ-C)

Figure C-7 Sample Completed Detailed Vessel Log

Appendix D

Record Layouts

CGTOW

File Name: CGTOW

Number of Record Types: One

File Description: Tow boats and Coast Guard Vessel number, vessel name, type, horsepower and owner name

Record Length: 265 Characters

Field	Variable	Description	Size	Picture	Units	Position
1	VESS-NUMBER	Vessel Number	6	X(6)		1 - 6
2	FILLER		1	X		7
3	VESS-NAME	Vessel Name	32	X(32)		8 - 39
4	FILLER		5	X(5)		40 - 44
5	VESS-TYPE	Vessel Type	3	XXX		45 - 47
6	FILLER		28	X(28)		48 - 75
7	VESS-HP	Vessel Horsepower	5	99999		76 - 80
8	VESS-OWNER	Vessel Owner	33	X(33)		81 - 113
9	FILLER		152	X(152)		114 - 265

COMMFL

File Name: COMMFL

Record of Number Types: One

File Description: Valid PMS Commodity Codes and their Names

Record Length: 80 Characters

Field	Variable	Description	Size	Picture	Units	Position
1	C-CODE	Commodity Code	2	99		1 - 2
2	C-NAME	Commodity Name	30	X(30)		3 - 32
3	Filler		48	X(48)		33 - 80

COSTFL

File Name: COSTFL

Number of Record Types: Two

File Description: Barge and Tow Operation Costs

Record Type: Tow Operating Cost

Record Description: Hourly cost of tow operation according to horsepower range

Record Length: 80 Characters

Field	Variable	Description	Size	Picture	Units	Position
1	COST HP-RANGE	0 - 500	8	999999V99	Dollars	1 - 8
2	COST HP-RANGE	501 - 1000	8	999999V99	Dollars	9 - 16
3	COST HP-RANGE	1001 - 1500	8	999999V99	Dollars	17 - 24
4	COST HP-RANGE	1501 - 2000	8	999999V99	Dollars	25 - 32
5	COST HP-RANGE	2001 - 3000	8	999999V99	Dollars	33 - 40
6	COST HP-RANGE	3001 - 4000	8	999999V99	Dollars	41 - 48
7	COST HP-RANGE	4001 - 5000	8	999999V99	Dollars	49 - 56
8	COST HP-RANGE	5001 - 7000	8	999999V99	Dollars	57 - 64
9	COST HP-RANGE	7001 - 9000	8	999999V99	Dollars	65 - 72
10	COST HP-RANGE	9000 - up	8	999999V99	Dollars	73 - 80

COSTFL

File Name: COSTFL

Number of Record Types: Two

File Description: Barge and Tow Operation Costs

Record Type: Tow Operating Cost

Record Description: Hourly cost of tow operation according to horsepower range

Record Length: 80 Characters

Field	Variable	Description	Size	Picture	Units	Position
1	CD-CODE	Card Code (Value=B)	1	X		1
2	B-TYPE	Barge Type	1	X		2
3	B-COST	Barge Cost	8	9(6)V99	Dollars	3 - 10
4	FILLER		70	X(70)		11 - 80

DISTCD

File Name: DISTCD

Number of Record Types: One

File Description: Tells whether monthly data are in new (one 718 character record) or old(five 132 character records) format.

Record length: 80 characters

Field	Variable	Description	Size	Picture	Units	Position
1	CD-DISTCD	District code	2	XX		1 - 2
2	LOCKAGE-DATA	Lockage data	3	XXX		3 - 5

EMTFLE

File Name: EMTFLE

Number of Record Types: One

File Description: Distance between locks, both directions

Record Length: 80 characters

Field	Variable	Description	Size	Picture	Units	Position
1	EMT-FROM-RIVCD	From river code	2	XX		1 - 2
2	EMT-FROM-LOCK	From lock code	2	99		3 - 4
3	EMT-MOR	Mileage on river of from river/ lock	4	9(4)		5 - 8
4	EMT-TO-LOCK	To river code	2	XX		9 - 10
5	EMT-TO-LOCK	To lock code	2	99		11 - 12
6	EMT-MBL	Number of miles	4	9(4)	mi.	13 - 16
7	EMT-DIR	Direction of travel (1=up, 2=down)	1	9		17
8	FILLER		3	XXX		18 - 20
9	FILLER		60	X(60)		21 - 80

LCKGIN

File Name: LCKGIN, LCKAGE

Number record types: Two

File description: For all locks in each district, description of lock and record of lock operation and traffic

Record type: One

Record description: Lock and chamber description, one per chamber.

Record size: 156

Field	Variable	Description	Size	Picture	Units	Position
1	ID-REC-TYPE	Record type	1	9		1
2	ID-FILL		2	XX		2-3
3	ID-LOCK	Lock number	2	99		4-5
4	ID-CHAMB	Chamber number	1	9		6
5	ID-SEQ	Sequence number	4	9999		7-10
6	ID-RIVCD	River code	2	XX		11-12
7	ID-DISTCD	District code	4	XXXX		13-16
8	ID-DIVCD	Division code	4	XXXX		17-20
9	ID-RIVERNAME	River name	23	X(23)		21-43
10	ID-LOCKNAME	Lock name	30	X(30)		44-73
11	ID-NO-CHBRS	Number of chambers	1	9		74
12	ID-LENGTH	Length of lock	4	9999	ft	75-78
13	ID-WIDTH	Width of lock	3	999	ft	79-81
14	ID-MO	Month of data	2	99	mo	82-83
15	ID-DA	Day of data	2	99	day	84-85
16	ID-YR	Year of data	2-	99	yr	86-87
17	ID-HTM	Hours in the month	6	999999	min	88-93
18	ID-FILLER		63	X(63)		94-156

File Name: LCKGIN, LCKAGE

Number record types: Two

File description: For all locks in each district, description of locks and record of locks operation and traffic

Record type: Two

Record description: Detail, shift, lockage and vessel data, one per lockage log.

Record size: Variable depending on number of barge sets, up to 718 characters.

Field	Variable	Description	Size	Picture	Units	Position
LR-ID						
1	LR-REC-TYPE	Record type key	1	9		1
2	FILLER		1	X		2
3	FILLER		1	X		3
4	LR-LOCK	Lock number	2	99		4-5
5	LR-CHAMB	Chamber number	1	X		6
6	LR-SEQ	Sequence number	4	9999		7-10
7	LR-RIVCD	River code	2	XX		11-12
8	LR-DISTCD	District code	4	XXXX		13-16
LR1A						
9	LR-MO-SHFT	Month of shift	2	99	mo	17-18
10	LR-DA-SHFT	Day of shift	2	99	day	19-20
11	LR-YR-SHFT	Year of shift	2	99	yr	21-22
12	LR-BEG-SHFT	Beginning time of shift	4	9999	24 hr clock	23-26
13	LR-TZ-STD	Time zone and standard	1	9		27
14	LR-SHFT-NO	Shift number	1	9		28

Field	Variable	Description	Size	Picture	Units	Position
15	LR-NO-PERS	Number of personnel	2	99		29-30
16	LR-UP-GGE	Upper gauge	6	999.99	ft.in	31-36
17	LR-LR-GGE	Lower gauge	6	999.99	ft.in	37-42
18	LR-WD-DIR	Wind direction	1	X		43
19	LR-WD-VEL	Wind velocity	1	X		44
20	LR-UP-CRT	Up current	1	X		45
21	LR-DN-CRT	Down current	1	X		46
22	LR-WTHR-CND	Weather condition	1	X		47
23	LR-WTHR-SEV	Weather severity	1	X		48
24	LR-SURF-CND	Surface condition	1	X		49
25	LR-SURF-SEV	Surface severity	1	X		50
26	LR-VSL-NO	Vessel number	7	X(7)		51-57
27	LR-VSL-HP	Vessel horsepower	5	9(5)		58-62
28	LR-VSL-NAME	Vessel name	32	X(32)		63-94
29	LE-VSL-OWNER	Vessel owner	33	X(33)		95-127
LR1B						
30	LR-DIR	Direction of lockage	1	9		128
31	LR-NO-CUTS	Number of cuts	2	99		129-130
32	LR-LCKG-TYPE	Lockage type	2	99		131-132
33	LR-VSL-TYPE	Vessel type	1	X		133
34	LR-NO-LT	Number of light boats	2	99		134-135
35	LR-NO-REC	Number of recreational craft	2	99		136-137
36	LR-NO-PSGR	Number of passengers	4	9999		138-141

Field	Variable	Description	Size	Picture	Units	Position
37	LR-ENTRY-TYPE	Entry type	1	9	142	
38	LR-EXIT-TYPE	Exit type	1	9	143	
39	LR-MO-ARRV	Month of arrival	2	99	144-145	
40	LR-DA-ARRV	Day of arrival	2	99	day	146-147
41	LR-TM-ARRV	Time of arrival	4	9999	24 hr clock	148-151
42	LR-SOL-1-HR	Start of lockage (1st cut)	2	99	hr	152-153
43	LR-SOL-1-MIN	Start of lockage (1st cut)	2	99	min	154-155
44	LR-BOS-1-HR	Bow over sill (1st cut)	2	99	hr	156-157
45	LR-BOS-1-MIN	Bow over sill (1st cut)	2	99	min	158-159
46	LR-EOE-1-HR	End of entry (1st cut)	2	99	hr	160-161
47	LR-EOE-1-MIN	End of entry (1st cut)	2	99	min	162-163
48	LR-SOE-1-HR	Start of exit (1st cut)	2	99	hr	164-165
49	LR-SOE-1-MIN	Start of exit (1st cut)	2	99	min	166-167
50	LR-EOL-1-HR	End of lockage (1st cut)	2	99	hr	168-169
51	LR-EOL-1-MIN	End of lockage (1st cut)	2	99	min	170-171
52	LR-SOL-2	Start of lockage (2nd cut)	4	9999	24 hr clock	172-175
53	LR-BOS-2	Bow over sill (2nd cut)	4	9999	24 hr clock	176-179
54	LR-EOE-2	End of entry (2nd cut)	4	9999	24 hr clock	180-183

Field	Variable	Description	Size	Picture	Units	Position
55	LR-SOE-2	Start of exit (2nd cut)	4	9999	24 hr clock	184-187
56	LR-EOL-2	End of lockage (2nd cut)	4	9999	24 hr clock	188-191
57	LR-IDLE-TM	Idle time	5	99999	min	192-196
58	LR-WAIT-TM	Wait time	5	99999	min	197-201
59	LR-TM-BTWEN-CUTS	Time between cuts	5	99999	min	202-206
LR2						
60	LR-APPR-TM1	Approach time (1st cut)	3	999	min	207-209
61	LR-ENTRY-TM1	Entry time (1st cut)	3	999	min	210-212
62	LR-CHMBR-TM1	Chambering time (1st cut)	3	999	min	213-215
63	LR-EXIT-TM1	Exit time (1st cut)	3	999	min	216-218
64	LR-APPR-TM2	Approach time (2nd cut)	3	999	min	219-221
65	LR-ENTRY-TM2	Entry time (2nd cut)	3	999	min	222-224
66	LR-CHMBR-TM2	Chambering time (2nd cut)	3	999	min	225-227
67	LR-EXIT-TM2	Exit time (2nd cut)	3	999	min	228-230
68	LR-TRNBACK-TM	Turnback time	3	999	min	231-233
69	LR-NO-TBS-TL	Number of turnbacks this lockage	2	99		234-235
70	LR-TOT-TRNBCK	Total turnbacks	2	99		236-237
71	LR-NO-MTS	Number of empties	2	99		238-239
72	LR-LNTH-STL	Length of stall	5	99999		240-244

Field	Variable	Description	Size	Picture	Units	Position
73	LR-MOB-STL	Month begin stall	2	99	mo	245-246
74	LR-DAB-STL	Day begin stall	2	99	day	247-248
75	LR-TMB-STL-HR	Time begin stall	2	99	hr	249-250
76	LR-TMB-STL-MIN	Time begin stall	2	99	min	251-252
77	LR-MOE-STL	Month end stall	2	99	mo	253-254
78	LR-DAE-STIL	Day end stall	2	99	day	255-256
79	LR-TME-STL-HR	Time end stall	2	99	hr	257-258
80	LR-TME-STL-MIN	Time end stall	2	99	min	259-260
81	LR-STALL-CD	Stall code	1	X		261
82	LR-TOW-LNGTH	Tow length	4	9999	ft	262-265
83	LR-TOW-WIDTH	Tow width	3	999	ft	266-268
84	LR-DRAFT-FT	Draft	2	99	ft	269-270
85	LR-DRAFT-IN	Draft	2	99	in	271-272
86	LR-LD-BRGS	Loaded barges	2	99		273-274
87	LR-MT-BRGS	Empty barges	2	99		275-276
88	LR-STOP-CD	Stop code	1	X		277
89	LR-SPACO-1	Special assist code (1)	1	X		278
90	LR-SPACO-2	Special assist code (2)	1	X		279
91	LR-PRM-VSNO	Prime vessel number	7	9(7)		280-286
92	LR-LL-NO-PSG	Number of passengers	3	999		287-289
93	LR-NO-BRG-SETS	Number of barge sets	2	99		290-291
94	LR-NO-VSL-SETS	Number of vessel sets	2	99		292-293
LR-REST						
95	LR-TOT-TNG	Total tonnage	6	9(6)	tons	294-299

Field	Variable	Description	Size	Picture	Units	Position
96	LR-AVESN1	Assisting vessel(1)	7	9(7)		294-299
97	LR-AVESN2	Assisting vessel(2)	7	9(7)		307-313
98	LR-AVESN3	Assisting vessel(3)	7	9(7)		314-320
99	LR-AVESN4	Assisting vessel(4)	7	9(7)		321-327
100	LR-AVESN5	Assisting vessel(5)	7	9(7)		328-334
101	LR-AVESN6	Assisting vessel(6)	7	9(7)		335-341
102	LR-KART	Vessel assist code	2	99		342-343
LR-VSL-LCK-OP-TM						
103	LR-VSL-OP	Vessel operation time (SOL to EOE + SOE to EOL)	6	9(6)	min	344-349
104	LR-LCK-OP	Lock operation time (EOE to SOE + turn-back time)	6	9(6)	min	350-355
LR-RX						
105	LR-VSL-LOG-TYPE	Vessel log type 3102c or 3102d	1	X		356
106	LR-KR	Filler	2	XX		357-358
107	LR-KL	Filler	2	99		359-360
108	LR-SUB	Barge set table size	6	9(6)		361-366
LR-BARGE TAGLES (occurs up to 22 times)						
109	LR-BRG-TYPE	Barge type (1)	1	X		367
110	LR-BRG-NUM	Barge number (1)	7	9(7)		368-374
111	LR-COM-CD	Commodity code (1)	2	99		375-376
112	LR-HAZ-CD	Hazard code (1)	1	9		377
113	LR-TONS	Commodity tons (1)	5	9(5)		378-382
109 to 113 REPEAT FORMAT AS ILLUSTRATED BY FIELD NUMBERS 114-218						383-718

File Name: MASTER, INFILE

Number record types: One

File description: Shift, lockage and vessel data from PMS edit

Record length: 929 characters

Field	Variable	Description	Size	Picture	Units	Position
1	FILLER		3	XXX		1-3
2	II-LOCKX1	1st character of lock number	1	X		4
3	II-LOCKX2	2nd character of lock number	1	X		5
4	II-CHAMB	Chamber number	1	9		6
5	II-SEQ	Sequence number	4	XXXX		7-10
6	IIRIVCD	River code	2	XX		11-12
7	IIDISTCD	District code	4	XXXX		13-16
8	LI-MO-SHFT	Month of shift	2	99	mo	17-18
9	LI-DA-SHFT	Day of shift	2	99	day	19-20
10	LI-YR-SHFT	Year of shift	2	99	yr	21-22
11	LI-BER-SHFT	Beginning time of shift	4	9999	24 hr clock	23-26
12	LI-TZ-STD	Time zone and standard	1	9		27
13	LI-SHFT-NO	Shift number	1	9		28
14	LI-NO-PERS	Number of personnel	2	99		29-30
15	FILLER		1	X		31
16	LI-UP-GGE	Upper gauge	5	999V99	ft	32-36

Field	Variable	Description	Size	Picture	Units	Position
17	FILLER		1	X		37
18	LI-LR-GGE	Lower gauge	5	999V99	ft	38-42
19	LI-WD-DIR	Wind direction	1	X		43
20	LI-WD-VEL	Wind velocity	1	X		44
21	LI-UP-CRT	Up current	1	X		45
22	LI-DN-CRT	Down current	1	X		46
23	LI-WTHR-CND	Weather condition	1	X		47
24	LI-WTHR-SEV	Weather severity	1	X		48
25	LI-SURF-CND	Surface condition	1	X		49
26	LI-SURF-SEV	Surface severity	1	X		50
27	LI-VSL-NO	Vessel number	7	X(7)		51-57
28	LI-VSL-HP	Vessel horsepower	5	9(5)		58-62
29	FILLER		65	X(65)		63-127
30	LI-DIR	Direction of lockage	1	9		128
31	LI-NO-CUTS	Number of cuts	2	99		129-130
32	LI-LCKG-TYPE	Lockage type	2	99		131-132
33	LI-VSL-TYPE	Vessel type	1	X		133
34	LI-NO-LT	Number of light boats	2	99		134-135
35	LI-NO-REC	Number of recreational craft	2	99		136-137
36	FILLER					
37	LI-NO-PSGR	Number of passengers	4	9999		138-141
38	LI-ENTRY-TYPE	Entry type	1	9		142
39	LI-EXIT-TYPE	Exit type	1	9		143

Field	Variable	Description	Size	Picture	Units	Position
40	LI-MO-ARRV	Month of arrival	2	99		144-145
41	LI-DA-ARRV	Day of arrival	2	99	day	146-147
42	LI-HR-ARRV	Time of arrival	2	99	hr	148-149
43	LI-MN-ARRV	Time of arrival	2	99	min	150-151
44	LI-SOL-1-HR	Start of lockage (1st cut)	2	99	hr	152-153
45	LI-SOL-1-MIN	Start of lockage (1st cut)	2	99	min	154-155
46	LI-BOS-1-HR	Bow over sill (1st cut)	2	99	hr	156-157
47	LI-BOS-1-MIN	Bow over sill (1st cut)	2	99	min	158-159
48	LI-EOE-1-HR	End of entry (1st cut)	2	99	hr	160-161
49	LI-EOE-1-MIN	End of entry (1st cut)	2	99	min	162-163
50	LI-SOE-1-HR	Start of exit (1st cut)	2	99	hr	164-165
51	LI-SOE-1-MIN	Start of exit (1st cut)	2	99	min	166-167
52	LI-EOL-1-HR	End of lockage (1st cut)	2	99	hr	168-169
53	LI-EOL-1-MIN	End of lockage (1st cut)	2	99	min	170-171
54	LI-SOL-2	Start of lockage (2nd cut)	4	9999	hr/min	172-175
55	LI-BOS-2	Bow over sill (2nd cut)	4	9999	hr/min	176-179
56	LI-EOE-2	End of entry (2nd cut)	4	9999	hr/min	180-183
57	LI-SOE-2	Start of exit (2nd cut)	4	9999	hr/min	184-187

Field	Variable	Description	Size	Picture	Units	Position
58	LI-EOL-2	End of lockage (2nd cut)	4	9999	hr/min	188-191
59	LI-IDLE-TM	Idle time	5	99999	min	192-196
60	LI-WAIT-TM	Wait time	5	99999	min	197-201
61	LI-TM-BTWEN-CUTS	Time between cuts	5	99999	min	202-206
LI2-NUM8						
62	LI-APPR-TM1	Approach time (1st cut)	3	999	min	207-209
63	LI-ENTRY-TM1	Entry time (1st cut)	3	999	min	210-212
64	LI-CHMBR-TM1	Chambering time (1st cut)	3	999	min	213-215
65	LI-EXIT-TM1	Exit time (1st cut)	3	999	min	216-218
66	LI-APPR-TM2	Approach time (2nd cut)	3	999	min	219-221
67	LI-ENTRY-TM2	Entry time (2nd cut)	3	999	min	222-224
68	LI-CHMBR-TM2	Chambering time (2nd cut)	3	999	min	225-227
69	LI-EXIT-TM2	Exit time (2nd cut)	3	999	min	228-230
70	LI-TRNBACK-TM	Turnback time	3	999	min	231-233
71	LI-NO-TBS-TL	Number of turnbacks this lockage	2	99		234-235
72	LI-TOT-TRNBCK	Total turnbacks	2	99		236-237
73	LI-NO-MTS	Number of empties	2	99		238-239
74	LI-LNTH-STL	Length of stall	5	99999		240-244

Field	Variable	Description	Size	Picture	Units	Position
75	LI-MOB-STL	Month begin stall	2	99	mo	245-246
76	LI-DAB-STL	Day begin stall	2	99	day	247-248
77	LI-TMB-STL	Time begin stall	4	9999		249-252
78	LI-MOE-STL	Month end stall	2	99	mo	253-245
79	LI-DAE-STL	Day end stall	2	99	day	255-256
80	LI-TME-STL	Time end stall	4	9999		257-260
81	LI-STALL-CD	Stall code	1	X		261
82	LI-TOW-LNGTH	Tow length	4	9999	ft	262-265
83	LI-TOW-WIDTH	Tow width	3	999	ft	266-268
84	LI-DRAFT-FT	Draft	2	99	ft	269-270
85	LI-DRAFT-IN	Draft	2	99	in	271-272
86	LI-LD-BRGS	Loaded barges	2	99		273-274
87	LI-MT-BRGS	Empty Barges	2	99		275-276
88	LI-STOP-CD	Stop code	1	X		277
89	LI-SPACO-1	Special assist code (1)	1	X		278
90	LI-SPACO-2	Special assist code (2)	1	X		279
91	LI-PRM-VSNO	Prime vessel number	7	9(7)		280-286
92	LI-LL-NO-PSG	Number of passengers (lockage log)	3	999		287-289
93	LI-NO-BRG-SETS	Number of barge sets	2	99		290-291
94	LI-NO-VSL-SETS	Number of vessel sets	2	99		292-293
95	LI-TOT-TNG	Total tonnage	6	9(6)	tons	294-299
96	LI-AVESN1	Assisting vessel(1)	7	9(7)		300-306

Field	Variable	Description	Size	Picture	Units	Position
97	LI-AVESN2	Assisting vessel(2)	7	9(7)		307-313
98	LI-AVESN3	Assisting vessel(3)	7	9(7)		314-320
99	LI-AVESN4	Assisting vessel(4)	7	9(7)		321-327
100	LI-AVESN5	Assisting vessel(5)	7	9(7)		328-334
101	LI-AVESN6	Assisting vessel(6)	7	9(7)		335-341
102	LI-KART	Vessel assist code	2	99		342-343
103	FILLER		12	X(12)		344-355
104	LI-VSL-LOG TYPE	Vessel log type (short or long; 3102c or 3102d)	1	X		356
105	LI-SHFT-LOG-	Shift log indicator	4	XXXX		357-360
106	LI-SUB	Barge set table size	6	9(6)		361-366
BARGE-DATA (Occurs up to 22 times)						
107	LI-BRG-TYP1	Barge type code (1)	1	X		367
108	LI-BRG-NUM 1	Barge number (1)	7	9(7)		368-374
109	LI-COMM-CD1	Commodity code (1)	2	99		375-376
110	LI-HAZ-CD1	Hazard code (1)	1	9		377
111	LI-COMM-TON1	Commodity tons (1)	5	9(5)	tons	378-382
112-148	REPEAT FORMAT FOR ITEMS 107-111 FOR UP TO 22 BARGE SETS					383-718
149	FILLER		211	X(11)		719-929

File Name: PARM001

Number of Record Types: Three

File Description: Lock rd, physical characteristics and timing function ranges by entire/exit

Record Type: 1, identified by 006 in field 4

Record Description: Lock identification, there is one record per lock.

Record Length: 80 characters

Field	Variable	Description	Size	Picture	Units	Position
1	N/A	district	2	XX		1 - 2
2	N/A	lock	2	XX		3 - 4
3	N/A	chamber	1	X		5 - 5
4	N/A	record ID	3	XXX		6 - 8
5	LID-RIVER-CODE	River code	2	XX		9 - 10
6	FILLER		2	XX		11 - 12
7	LID-RIVER-NAME	river name	23	X(23)		13 - 35
8	LID-LOCK-NAME	lock name	30	X(30)		36 - 65
9	LID-NO-CHAMB	number of chambers	1	X		66 - 66
10	LID-CHAMB-LENGTH	chamber length	4	9(4)		67 - 70
11	LID-CHAMB-WIDTH	chamber width	4	9(4)		71 - 74
12	LID-DRAFT	draft	3	9(3)		75 - 77
13	LID-LOG-TYPE	lockage log type	1	X		78 - 78
14	FILLER		2	XX		79 - 80

File Name: PARM001

Number of Record Types: Three

File Description: Lock rd, physical characteristics and t'ming function ranges by entry/exit type within lockage ype.

Record Type: 2, identified by 007 in field 4

Record Description: Lock characteristics, there is one record per lock

Record Length: 54 characters

Field	Variable	Description	Size	Picture	Units	Position
1	N/A	district	2	XX		1 - 2
2	N/A	lock	2	XX		3 - 4
3	N/A	chamber	1	X		5 - 5
4	N/A	record ID	3	XXX		6 - 8
5	LC-TIME-ZONE1	time zone	1	X		9 - 9
6	LC-TIME-ZONE2	time zone	1	X		10 - 10
7	FILLER		1	X		11 - 11
8	LC-UP-GGE-MIN	upper guage min.	5	X(5)		12 - 16
9	FILLER		1	X		17 - 17
10	LC-UP-GGE-MAX	upper guage max.	5	X(5)		18 - 22
11	LC-BEGIN-SHIFT 1	first shift starting time	4	9(4)		23 - 26
12	LC-BEGIN-SHIFT 2	second shift starting time	4	9(4)		27 - 30
13	LC-BEGIN-SHIFT 3	third shift starting time	4	9(4)		31 - 34
14	FILLER		1	X		35 - 35
15	LC-LR-GGE-MIN	lower guage min.	5	X(5)		36 - 40
16	FILLER		1	X		41 - 41
17	LC-LR-GGE-MAX	lower guage max.	5	X(5)		42 - 46
18	LC-MAX-NO-PERS	maximum number operators	2	99		47 - 48
19	LC-MAX-WAIT	maximum wait time	6	9(6)		49 - 54

File Name: PARM001

Number of Record Types: Three

File Description: Lock ID, physical characteristics, timing functions

Record Type: 3, identified as 031 to 041 in field 3 according to lockage type

Record Description: Timing Functions by entry/exit type, there is one record for each of 11 lockage types

Record Length: 80 characters

Field	Variable	Description	Size	Picture	Units	Position
1	HLD-DIS	district	2	XX		1 - 2
2	HLD-LC	lock/chamber	3	XXX		3 - 5
3	HLD-LIMITS-KEY	record id	3	XXX		6 - 8
4	HLD-APP-FL4-MIN	approach fly min.	4	9(4)		9 - 12
5	HLD-APP-EXH-MIN	approach exchange minimum	4	9(4)		13 - 16
6	HLD-APP-TRN-MIN	approach turnback minimum	4	9(4)		17 - 20
7	HLD-ENTRY-MIN	entry minimum	4	9(4)		21 - 24
8	HLD-CHAMBER-MIN	chamber minimum	4	9(4)		25 - 28
9	HLD-EXT-FLY-MIN	exit fly minimum	4	9(4)		29 - 32
10	HLD-EXT-EXH-MIN	exit exchange min.	4	9(4)		33 - 36
11	HLD-EXT-TRN-MIN	exit turnback min.	4	9(4)		37 - 40
12	HLD-APP-FLY-MAX	approach fly max.	4	9(4)		41 - 44
13	HLD-APP-EXH-MAX	approach exchange maximum	4	9(4)		45 - 48
14	HLD-APP-TRN-MAX	approach turnback maximum	4	9(4)		49 - 52
15	HLD-ENTRY-MAX	entry maximum	4	9(4)		53 - 56
16	HLD-CHAMBER-MAX	chamber maximum	4	9(4)		57 - 60
17	HLD-EXT-FLY-MAX	exit fly maximum	4	9(4)		61 - 64
18	HLD-EXT-EXH-MAX	exit exchange max.	4	9(4)		65 - 68
19	HLD-EXT-TRN-MAX	exit turnback max.	4	9(4)		69 - 72
20	FILLER		8	X(8)		73 - 80

File Name: SELCARD

Number of Record Types: One

File Description: Starting and ending lock, chamber and sequence numbers for selected dumps from monthly master file. If multiple selection records are used, they must be in aaxending order.

Record length: 14 characters

FIELD	DESCRIPTION	SIZE	TYPE DATA	POSITION
1	Starting lock	2	N	1 - 2
2	Starting chamber	1	N	3
3	Starting record number	4	N	4 - 7
4	Ending lock	2	N	8 - 9
5	Ending chamber	1	N	10
6	Ending record number	4	N	11 - 14

STNDRD

File Name: STNDRD

Number of Record Types: Two

File Description: Statistics for lock timing events

Record Type: One

Record Description: Statistics for upbound lockages (monthly)

Record length: 1812 characters

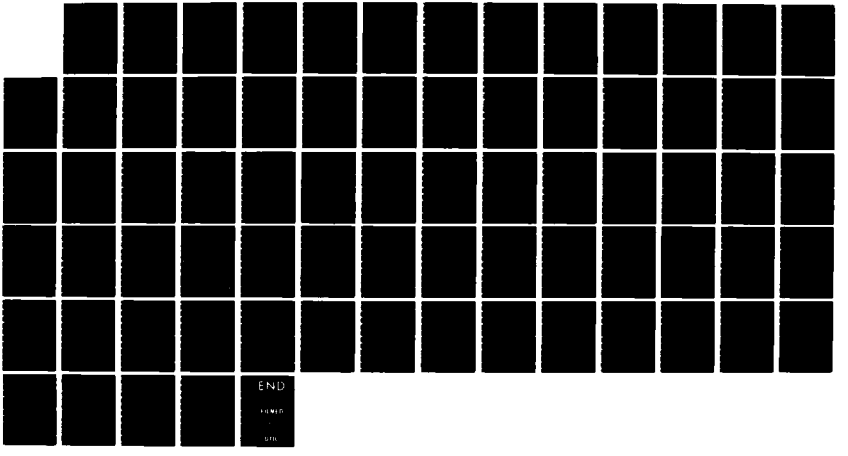
Field	Variable	Description	Size	Picture	Units	Position
STD1-ID-DATA						
1	ST1-TYPE	Record Type	1	9		1
2	ST1-YR	Year of data	2	99.	yr	2 - 3
3	ST1-MO	Month of data	2	99.	mo	4 - 5
4	ST1-DISTCD	District code	4	X(4)		6 - 9
5	ST1-RIVCD	River Code	2	X(2)		10 - 11
6	ST1-LOCKNO	Lock Number	2	99.		12 - 13
7	ST1-CHAMBNO	Chamber number	1	9.		14
8	ST1-DIRECTION	Direction	1	9.		15
STANDARDS-TRIPS-UP						
U-STD-TYPES (occurs 14 times, once for each lockage type, see Table 1)						
Approach-Fly						
9	U-NO	Total number of occurrences	4	9(4)		16 - 19
10	U-TM	Sum of the times	4	9(4)	min.	20 - 23
11	U-TMSQ	Sum of the times^2	8	9(8)	min.	24 - 31
Approach-Exchange						
12	U-NO	Total number of occurrences	4	9(4)		32 - 35
13	U-TM	Sum of the times	4	9(4)	min.	36 - 39
14	U-TMSQ	Sum of the times^2	8	9(8)	min.	40 - 47

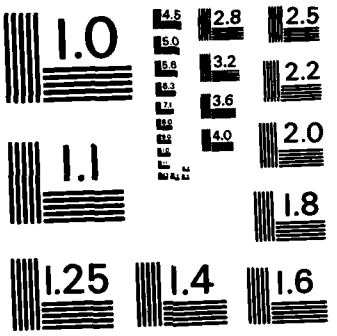
STNDRD

Field	Variable	Description	Size	Picture	Units	Position
Approach-Turnback						
15	U-NO	Total number of occurrences	4	9(4)		48 - 51
16	U-TM	Sum of the times	4	9(4)	min.	52 - 55
17	U-TMSQ	Sum of the times^2	8	9(8)	min.	56 - 63
Enter Chamber						
18	U-NO	Total number of occurrences	4	9(4)		64 - 67
19	U-TM	Sum of the times	4	9(4)	min.	68 - 71
20	U-TMSQ	Sum of the times^2	8	9(8)	min.	72 - 79
Chambering						
21	U-NO	Total number of occurrences	4	9(4)		80 - 83
22	U-TM	Sum of the times	4	9(4)	min.	84 - 87
23	U-TMSQ	Sum of the times	8	9(8)	min.	88 - 95
Exit-Fly						
24	U-NO	Total number of occurrences	4	9(4)		96 - 99
25	U-TM	Sum of the times	4	9(4)	min.	100 - 103
26	U-TMSQ	Sum of the times^2	8	9(8)	min.	104 - 111
Exit-Exchange						
27	U-NO	Total number of occurrences	4	9(4)		112 - 115
28	U-TM	Sum of the times	4	9(4)	min.	116 - 119
29	U-TMSQ	Sum of the times^2	8	9(8)	min.	120-127
Exit-Turnback						
30	U-NO	Total number of occurrences	4	9(4)		128 - 131

AD-A163 000 LOCK PERFORMANCE MONITORING SYSTEM USER'S MANUAL FOR DATA COLLECTION AND EDITING(U) CORPS OF ENGINEERS FORT BELVOIR VA WATER RESOURCES SUPPORT CE 2/2

UNCLASSIFIED M V FLEMING ET AL AUG 85 WRSC-85-UM-1 F/G 13/10 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

STNDRD

Field	Variable	Description	Size	Picture	Units	Position
31	U-TM	Sum of the times	4	9(4)	min.	132 - 135
32	U-TMSQ	Sum of the times^2	8	9(8)	min.	136 - 143
33-344	TABLE 1					144 - 1807
345	Filler	Value Zeroes	5	X(5)		1808 - 1812

STNDRD

Field	Variable	Description	Size	Picture	Units	Position
Approach-Turnback						
15	U-NO	Total number of occurrences	4	9(4)		48 - 51
16	U-TM	Sum of the times	4	9(4)	min.	52 - 55
17	U-TMSQ	Sum of the times^2	8	9(8)	min.	56 - 63
Enter Chamber						
18	U-NO	Total number of occurrences	4	9(4)		64 - 67
19	U-TM	Sum of the times	4	9(4)	min.	68 - 71
20	U-TMSQ	Sum of the times^2	8	9(8)	min.	72 - 79
Chambering						
21	U-NO	Total number of occurrences	4	9(4)		80 - 83
22	U-TM	Sum of the times	4	9(4)	min.	84 - 87
23	U-TMSQ	Sum of the times	8	9(8)	min.	88 - 95
Exit-Fly						
24	U-NO	Total number of occurrences	4	9(4)		96 - 99
25	U-TM	Sum of the times	4	9(4)	min.	100 - 103
26	U-TMSQ	Sum of the times^2	8	9(8)	min.	104 - 111
Exit-Exchange						
27	U-NO	Total number of occurrences	4	9(4)		112 - 115
28	U-TM	Sum of the times	4	9(4)	min.	116 - 119
29	U-TMSQ	Sum of the times^2	8	9(8)	min.	120-127
Exit-Turnback						
30	U-NO	Total number of occurrences	4	9(4)		128 - 131

STNDRD

File Name: STNDRD

Number of Record Types: Two

File Description: Statistics for lock timing events

Record Type: Two

Record Description: Statistics for downbound lockages (monthly)

Record Length: 1812 characters

Record layout identical to that for file STNDRD, record type one, except data are for downbound direction.

SUMMRY

File Name: SUMMRY

Number of record types: Two

File description: Monthly summary of activity at each lock and chamber

Record type: One

Record description: Lockage and vessel summary information

Record length: 336 characters

Field	Variable	Description	Size	Picture	Units	Position
S1-ID-DATA						
1	S1-TYPE	Record type key	1	X		1
2	S1-DISTCD	District code	4	XXXX		2 - 5
3	S1-RIVCD	River code	2	XX		6 - 7
4	S1-LOCK	Lock Number	2	99		8 - 9
5	S1-CHAMB	Chamber number	1	9		10
6	S1-LOCKNAME	Lock name	30	X(30)		11 - 40
7	S1-RIVERNAME	River name	23	X(23)		41 - 63
8	S1-SIZE	Maximum length of lock	6	9(6)	ft.	64 - 69
9	S1-LIFT	Maximum draft	6	9(6)	ft.	70 - 75
10	S1-TZ-STD	Time Zone & standard	1	9		76
11	S1-YR	Year of data	2	99	mo.	77 - 78
12	S1-MO	Month of data	2	99	mo.	79 - 80
13	FILLER		16	X(16)		81 - 96
S1-UP-TOTALS						
14	S1U-LCKAGES	Total lockages	6	9(6)		97 - 102
15	S1U-TOWS	Total tows	6	9(6)		103 - 108
16	S1U-BRGS-MT	Total barges, empty	6	9(6)		109 - 114
17	S1U-BRGS-LD	Total barges, loaded	6	9(6)		115 - 120
18	S1U-VESSELS	Total vessels	6	9(6)		121 - 126

SUMMRY

Field	Variable	Description	Size	Picture	Units	Position
19	S1U-REC-CRAFT	Total recreational vessels	6	9(6)		127 - 132
20	S1U-IDLE-TM	Total idle time	6	9(6)	min	133 - 138
21	S1U-TBTWNCTS	Total time between cut	6	9(6)	min	139 - 144
22	S1U-STALLS	Total stalls	6	9(6)		145 - 150
23	S1U-INTRF	Total interferences	6	9(6)		151 - 156
24	S1U-STL-TM	Total stall time	6	9(6)		157 - 162
25	S1U-PROC-TM-TOW	Processing time (tows)	6	9(6)	min	163 - 168
26	S1U-PROC-TM	All processing time (all)	6	9(6)	min	169 - 174
27	S1U-AVATL-TM	Available lock time	6	9(6)	min	175 - 180
28	S1U-NO-DELAYS	Total number delays	6	9(6)		181 - 186
29	S1U-DELAY-TM	Total delay time	6	9(6)	min	187 - 192
30	S1U-MAX-DELAY	Maximum delay time	6	9(6)	min	193 - 198
31	S1U-TRNBACK-TM	Turnback time	6	9(6)	min	199 - 204
32	S1U-DEL-TOWS	Total Delayed tows	6	9(6)		205 - 210
33	S1U-DEL-TM-TOWS	Total delay time, tows	6	9(6)	min	211 - 216
S1-DN-TOTALS						
34	S1D-LCKAGES	Total lockages	6	9(6)		217 - 222
35	S1D-TOWS	Total tows	6	9(6)		223 - 228
36	S1D-BRGS-MT	Total barges, empty	6	9(6)		229 - 234
37	S1D-BRGS-LD	Total barges, loaded	6	9(6)		235 - 240
38	S1D-VESSELS	Total vessels	6	9(6)		241 - 246
39	S1D-REC-CRAFT	Total recreational vessels	6	9(6)		247 - 252
40	S1D-IDLE-TM	Total idle time	6	9(6)	min	253 - 258

SUMMRY

Field	Variable	Description	Size	Picture	Units	Position
41	S1D-TBTW-NCTS	Total time between cuts	6	9(6)	min	259 - 264
42	S1D-STALLS	Total stalls	6	9(6)		265 - 270
43	S1D-INTRF	Total interferences	6	9(6)		271 - 276
44	S1D-STL-TM	Total stall time	6	9(6)	min	277 - 282
45	S1D-PROC-TM-TOW	Processing time (tows)	6	9(6)	min	283 - 288
46	S1D-PROC-TM-ALL	Processing time (all)	6	9(6)	min	289 - 294
47	S1D-AVAIL-TM	Available lock time	6	9(6)	min	295 - 300
48	S1D-NO-DELAYS	Total number delays	6	9(6)		301 - 307
49	S1D-DELAY-TM	Total delay time	6	9(6)	min	308 - 312
50	S1D-MAX-DELAY	Maximum delay time	6	9(6)	min	313 - 318
51	S1D-TRNBACK-TM	Turnback time	6	9(6)	min	319 - 324
52	S1D-DEL-TOWS	Total delayed tows	6	9(6)		325 - 330
53	S1D-DEL-TM-TOWS	Total delay time, tows	6	9(6)	min	331 - 336

SUMMRY

File name: SUMMRY

Number of Record Types: Two

File Description: Monthly summary of activity at each lock and chamber

Record type: Two

Record description: Commodity summary information

Record Length: 336 characters

Field	Variable	Description	Size	Picture	Units	Position
S1-ID-DATA						
1	S2-TYPE	Record type key	1	9		1
2	S2-DISTCD	District code	4	XXX		2 - 5
3	S2-RIVCD	River code	2	XX		6 - 7
4	S2-LOCK	Lock number	2	99		8 - 9
5	S2-CHAMB	Chamber number	1	9		10
S2-TABLES						
6	S2-COMM	Community code	2	99		11 - 12
7	S2-DIR	Direction code	1	9		13
8	S2-TONS	Commodity tonnage	9	9(9)	tons	14 - 22
9-80	REPEAT FORMAT AS ILLUSTRATED BY FIEOLD NUMBER 6 to 0 24 MORE TIMES					
81	S2-YR	Year of data	2	99	yr.	311 - 312
82	S2-MO	Month of data	2	00	mo.	313 - 314
83	S2-FILLER		22	X(22)		315 - 336

TRANSAC

File Name: TRANSAC

Number of Record types: Six

File description: Monthly input shift, lockage and vessel data

Record Type: One

Record Description: Shift data from form ENG 3102a. There is one record type per transaction.

Record Length: 80 characters

FIELD	DESCRIPTION	SIZE	TYPE DATA	POSITION
1	Lock	2	N	1 - 2
2	Chamber	1	N	3
3	Record Number	4	N	4 - 7
4	Card code	1	N	8
5	River code	2	A	9 - 10
6	Month	2	N	11 - 12
7	Day	2	N	13 - 14
8	Year	2	N	15 - 16
9	Time	4	N	17 - 20
10	Time Zone	1	A	21
11	Shift	1	N	22
12	Number Personnel	2	N	23 - 24
13	Upper Guage	5	N	25 - 29
14	Lower Guage	5	N	30 - 34
15	Wind: Direction	1	N	35
16	Velocity	1	N	36
17	Current: Upper	1	N	37

TRANSAC

FIELD	DESCRIPTION		SIZE	TYPE DATA	POSITION
18		Lower	1	N	38
19	Weather:	Condition	1	N	39
20		Severity	1	N	40
21	Surface:	Type	1	N	41
22		Severity	1	N	42
23	Transaction Code		1	A	80

TRANSAC

File Name: TRANSAC

Number of Record Types: Six

File Description: Monthly input shift, lockage and vessel data

Record Type: Two

Record Description: Lockage data from form ENG 3102b. There is one record type per transaction.

Record Length: 80 characters

FIELD	DESCRIPTION	SIZE	TYPE DATA	POSITION
1	Lock	2	N	1 - 2
2	Chamber	1	N	3
3	Sequence	4	N	4 - 7
4	Card Code	1	N	8
5	Vessel Number	7	N	9 - 15
6	Direction	1	N	16
7	Number of Cuts	2	N	17 - 18
8	Lockage Type	1	A	19
9	Vessel Type	1	A	20
10	Number Lightboats	2	N	21 - 22
11	Number Rec Craft	2	N	23 - 24
12	Number Passengers	4	N	25 - 28
13	Entry Type	1	A	29
14	Exit Type	1	A	30
15	Month Arrival	2	N	31 - 32
16	Day Arrival	2	N	33 - 34
17	Time Arrival	4	N	35 - 38

TRANSAC

FIELD	DESCRIPTION	SIZE	TYPE DATA	POSITION
18	Start of Lockage 1	4	N	39 - 42
19	Bow Over Sill 1	4	N	43 - 46
20	End of Entry 1	4	N	47 - 50
21	Start of Exit 1	4	N	51 - 54
22	End of Lockage 1	4	N	55 - 58
23	Start of Lockage 2	4	N	59 - 62
24	Bow Over Sill 2	4	N	63 - 66
25	End of Entry 2	4	N	67 - 70
26	Start of Exit 2	4	N	71 - 74
27	End of Lockage 2	4	N	75 - 78
28	Transaction Code	1	A	80

TRANSAC

File Name: TRANSAC

Number of Record Types: Six

File Description: Monthly input shift, lockage and vessel data

Record Type: Three

Record Description: Vessel data from form ENG 3102c or 3102d. There are as many record type threes per transaction as required.

Record Length: 80 characters

FIELD	DESCRIPTION	SIZE	TYPE DATA	POSITION
1	Lock	2	N	1 - 2
2	Chamber	1	N	3
3	Sequence	4	N	4 - 7
4	Card Code	1	N	8
5	Vessel Number	7	N	9 - 15
6	Assisting Vessel #	7	N	16 - 22
7	Length	4	N	23 - 26
8	Width	3	N	27 - 29
9	Draft Feet	2	N	30 - 31
10	Draft Inches	2	N	32 - 33
11	Number loaded barges	2	N	34 - 35
12	Number empty barges	2	N	36 - 37
13	Stop code	1	A	38
14	Special assist #1	1	A	39
15	Special assist #2	1	A	40
16	Number passenger	4	N	41 - 44
17	Month begin stall	2	N	45 - 46
18	Day begin stall	2	N	47 - 48

TRANSAC

FIELD	DESCRIPTION	SIZE	TYPE DATA	POSITION
19	Time begin stall	4	N	49 - 52
20	Month eng stall	2	N	53 - 54
21	Day end stall	2	N	55 - 56
22	Time end stall	4	N	57 - 60
23	Stall code	1	A	61
24	Transaction code	1	A	80

TRANSAC

File Name: TRANSAC

Number of Record Types: Six

File Description: Monthly input shift, lockage and vessel data

Record Type: Four

Record Description: Barge data from form ENG 3102c. Use as many card type fours as required to report information for up to 22 barge sets. There may be up to five record type four's for each record type three in the transaction. Record type four is never used when there is a record type five.

Record Length: 80 characters

FIELD	DESCRIPTION	SIZE	TYPE DATA	POSITION
1	Lock	2	N	1 - 2
2	Chamber	1	N	3
3	Sequence	4	N	4 - 7
4	Card code	1	N	8
5	Vessel number	7	N	9 - 15
	Filler			16
6	Type barge set 1	1	A	17
7	Number barge set 1	2	N	18 - 19
8	Commodity barge set 1	2	N	20 - 21
9	Tonnage barge set 1	5	N	22 - 26
	Filler			27
10	Type barge set 2	1	A	28
11	Number barge set 2	2	N	29 - 30
12	Commodity barge set 2	2	N	31 - 32
13	Tonnage barge set 2	5	N	33 - 37
	Filler			38
14	Type barge set 3	1	A	39
15	Number barge set 3	2	N	40 - 41

TRANSAC

FIELD	DESCRIPTION	SIZE	TYPE DATA	POSITION
16	Commodity barge set 3	2	N	42 - 43
17	Tonnage barge set 3	5	N	44 - 48
	Filler			49
18	Type barge set 4	1	A	50
19	Number barge set 4	2	N	51 - 52
20	Commodity barge set 4	2	N	53 - 54
21	Tonnage barge set 4	5	N	55 - 59
	Filler			60
22	Type barge set 5	1	A	61
23	Number barge set 5	2	N	62 - 63
24	Commodity barge set 5	2	N	64 - 65
25	Tonnage barge set 5	5	N	66 - 70
26	Transaction code	1	A	80

TRANSAC

File Name: TRANSAC

Number of Record Types: Six

File Description: Monthly input shift, lockage and vessel data

Record Type: Five

Record Description: Barge data from form ENG 3102d. Use as many card type fives as required to report data for up to 22 barge sets. There may be up to six record type fives per each record type three. Record type five is never used when there is a record type four.

Record Length: 80 characters

FIELD	DESCRIPTION	SIZE	TYPE DATA	POSITION
1	Lock	2	N	1 - 2
2	Chamber	1	N	3
3	Sequence	4	N	4 - 7
4	Card code	1	N	8
5	Vessel number	7	N	9 - 15
6	Barge number 1	7	N	16 - 22
7	Barge type 1	1	A	23
8	Commodity 1	2	N	24 - 25
9	Hazard 1	1	A	26
10	Tonnage 2	5	N	27 - 31
11	Barge number 2	7	N	32 - 38
12	Barge type 2	1	A	39
13	Commodity 2	2	N	40 - 41
14	Hazard 2	1	A	42
15	Tonnage 2	5	N	43 - 47
16	Barge number 3	7	N	48 - 54
17	Barge type 3	1	A	55
18	Commodity 3	2	N	56 - 57

TRANSAC

FIELD	DESCRIPTION	SIZE	TYPE DATA	POSITION
19	Hazard 3	1	A	58
20	Tonnage 3	5	N	59 - 63
21	Barge number 4	7	N	64 - 70
22	Barge type 4	1	A	71
23	Commodity 4	2	N	72 - 73
24	Hazard 4	1	A	74
25	Tonnage 4	5	N	75 - 79
26	Transaction code	1	A	80

File Name: TRANSAC

Number of Record Types: Six

File Description: monthly input shift, lockage and vessel data

Record Type: Six

Record Description: Lightboat data from form 3102d. There is one recrod type six per transaction. Record type six is only used when there is a record type five.

Record Length: 80 characters

FIELD	DESCRIPTION	SIZE	TYPE DATA	POSITION
1	Lock	2	N	1 - 2
2	Chamber	1	N	3
3	Sequence	4	N	4 - 7
4	Vessel number	7	N	8 - 14
5	Vessel number 1st lightboat	7	N	15 - 21
6	Vessel number 2nd lightboat	7	N	22 - 28
7	Vessel number 3rd lightboat	7	N	29 - 35
8	Vessel number 4th lightboat	7	N	36 - 42
9	Vessel number 5th lightboat	7	N	43 - 49
10	Vessel number 6th lightboat	7	N	50 - 56
11	Transaction code	1	A	80

APPENDIX E

PMS EDITS BY DATA FIELD

Appendix E

PMS EDITS BY DATA FIELD

The following lists the edits performed by the PMS edit program on each data field. The fields are listed as entered on cards and include both the condition checked and some remarks which may help pinpoint errors.

Those items flagged with a "+" indicate errors which will occur if entered information does not agree with that recorded in the lock parameter file (PARM001).

Care should be taken in entering all data, but special care should be given to data in fields flagged with an "*". An error in any of these fields may prevent the successful execution of report runs.

CARD 1 - Shift Log

Field	Probable Cause	Error Message	Remarks
N/A	shift log omitted		If the shift log is omitted, a large number of errors for times, calculated fields, and stalls will result since shift month and day won't match dates on other logs.
lock number	zero or not numeric	"Key not numeric" "Lock/Chamber invalid"	Record rejected.
chamber number	zero or not numeric	"Key not numeric" "Lock/Chamber invalid"	Record rejected.
card code	not numeric or not between 1 and 6	"Key not numeric" "Illegal card code"	Record rejected.
record number	zero, non numeric, greater than 9999 or out of sequence. Record number same as that for an existing master record, an add transaction or not the same as an existing master record for a delete or change transaction	"Sequence and/or CRD-CD wrong" "Duplicate card for add" "Add-Record on Master" "Change-no match"	Make sure the record numbers increase with time (e.g., If a shift starts at 0801 and the log is assigned record number 10, record number 11 cannot be assigned a lockage log with start of lockage at 0759. Also, record numbers for multi-vessel lockage must be assigned according to start of lockage.)

Card 1 - Shift Log

Field	Probable Cause	Error Message	Remarks
			If the number is missing, a warning message is issued. If the record number is out of sequence, delete the incorrect record and add the correct. If the record number is a duplicate the first type 2 and 3 cards are accepted, the second are rejected. The first 4 or 5 card is accepted and additionals will be assumed to provide barge set information.
river code*	river code is not one of those listed in Appendix J	"CC09-10 ID River Code"	
shift month*	the month is not numeric or not equal to the month entered on the "current month" parameter card	"CC11-12 Month"	
shift day*	the day is not between 1 and 31 or it is not numeric	"CC13-14 Day"	
shift year*	the year is not numeric or it is not equal to the year in the "current month" parameter card	"CC15-16 Year"	
shift time	the time is not between 0001 and 2400 hours or it is not numeric	"CC17-20 Time"	
time zone	time zone code not between 1 and 6 or it is not numeric	"CC21-21 Time Zone"	
shift number+	The shift number is not between 1 and 3, is not numeric or the time of shift and shift number do not agree with parameter file information supplied by district.	"CC22-22 Shift Number"	If necessary, the time a shift begins as defined in the parameter may be adjusted to reflect changes in lock operation schedule by calling EASA.

Card 1 - Shift Log

Field	Probable Cause	Error Message	Remarks
no. lock operators+	number of persons exceeds number supplied by District in parameter file.	"CC23-24 Lock Oper"	If necessary, number of lock operators in parameter file may be adjusted to reflect changes at lock.
upper gauge+	the gauge reading is not numeric or is not within the max and min limits supplied by the District in parameter file	"CC25-29 Upper Gauge"	Parameter file may be updated, if necessary.
lower gauge+	The gauge reading is not numeric or is not within the max and min limits supplied by the District in parameter file	"CC30-34 Lower Gauge"	Parameter file may be updated, if necessary.
wind direction	Both wind direction and velocity are not 0, direction is between one and nine and velocity is not 1,3,5,7 or direction is not numeric	"CC35-35 Wind Dir"	If the direction is not 0, the velocity must also be supplied.
wind velocity	See comments for wind direction	"CC36-36 Wind Vel"	If the velocity is not 0, the direction must also be supplied.
current upper	not numeric	"CC37-37 Current Upper"	
current lower	not numeric	"CC38-38 Current Lower"	
weather condition	Both weather condition and severity are not 0, condition code is not 1,2,3,4,5,6 or 9, severity code is not 1,2 or 3, or either field is not numeric	"CC39 Weather Cond."	If the condition other than clear, the severity of the condition must also be defined.
weather severity	See comments for weather condition	"CC40-40 Weather Serv."	If the severity is defined, the condition must be other than clear.
surface condition	Code not numeric or 0 to 3	"CC41-41 Surface Con."	If surface condition is other than clear, the severity of the condition must also be checked
surface severity	Code not numeric or not 1 to 4	"CC42-42 Surface Sev."	If surface severity is checked, condition must be other than clear

Card 2 - Lockage Log

Field	Probable Cause	Error Message	Remarks
vessel number	Must be numeric and must not be zero	"CC09-15 Vessel Num."	
direction*	U or D must be checked and entered appropriately	"CC16-16 Direction"	Incorrect direction will cause reports to provide misleading information. The tow transit analysis report output will be particularly confusing.
no. of cuts*	Must be numeric and greater than 0. If the number cuts is 2 or more, the time fields for multiple cuts must not be blank	"CC17-18 Number Cuts"	
lockage type*	Must be either S,V,J,K,M,F,P, D,T or Z	"CC19-19 Lockage Type"	If lockage type is M, all entry & exit types must be the same
vessel type	Must be either T,P,R,C,G,U, F,Z or L	"CC20-20 Vessel Type"	Enter at least 1 barge set for "C" type vessels (on the vessel log).
no. light boats	Must be numeric	"CC21-22 Lt-Com Boat"	
no. recreational craft	Must be numeric	"CC23-24 Rec Vessels"	
no. passengers	Must be numeric	"CC26-28 passengers"	Do not count passengers on commercial passenger boats or ferries
entry type*	Must be F,E or T	"CC29-29 Entry Type"	If Lockage Type is M, all entry and exit types should be the same. If entry type is E, SOL must equal EOL of previous vessel.
TIMES:			Any times out of sequence will cause errors for events calculated from data input. No two times may be the same for an individual vessel. Accuracy is important.
arrival			
month*	Must be between 1 and 12	"CC31-32 Month Arriv"	Arrival times are used to compute wait and idle time.
day*	Must be between 1 and 31	"CC33-34 Day Arriv"	
time*	Must be between 0001 and 2400 hours	"CC35-38 Time Arriv"	

Card 2 - Lockage Log

Field	Probable Cause	Error Message	Remarks
SOL1+ start of lockage, first cut.	Must be between 0001 and 2400 and must be between corresponding times	"CC39-42 Start Lock"	Must be equal to EOL for previous lockage if lockage entry; if lockage type is D only SOL1 and EOL1 needed. The record number is assigned based on SOL1.
BOS1+ Bow over lock sill, first cut	Must be between 0001 and 2400 unless lockage type is open or navigable pass or vessel type is R. In the latter case BOS1 can be "0000".	"CC43-45 Bow OV Sill"	
EOE1+ End of entry, first cut.	Must be between 0001 and 2400. EOE may be "0000" only if vessel Type is R.	"CC47-50 End Entry"	
SOE1+ Start of exit, first cut	See comments EOE1	"CC51-54 Start Exit"	
EOL1+ End of lockage, first cut.	Must be between 0001 and 2400	"CC55-58 End Lockage"	
SOL2+ Start of lockage, second or last cut.	If number of cuts is less than 2, SOL2 must equal spaces; otherwise it must be between 0001 and 2400	"CC59-62 Start Lock"	These times must be deleted when the number of cuts is changed from 2 to 1. To delete, enter 0 in the low order position (right most) of each event
BOS2+ Bow over lock sill, second or last cut.	Must be between 0001 and 2400	"CC63-66 Bow Ov Sill"	
EOE2+ End of entry, second or last cut.	Must be between 0001 and 2400	"CC67-70 End Entry"	
SOE2+ Start of exit, second or last cut.	Must be between 0001 and 2400	"CC71-74 Start Exit"	
EOL2+ End of lockage, second or last cut.	Must be between 0001 and 2400	"CC75-78 End Lockage"	

Card 3 - Vessel Log and Stall Information

Field	Probable Cause	Error Message	Remarks
vessel number	Must be numeric and must not be zero	"CC9-15 Vessel Num"	
assisting vsl no		"CC16-22 Asst Vess"	Be sure there is at least a 1 on the prime mover's lockage log for light boats and enter assisting vessel number here.
length	Must be numeric and greater than 1	"CC23-26 Length"	The length is only edited for vessel type "C" or "T". Total length cannot exceed chamber length if lockage type is straight.
width	Must be numeric and greater than 1	"CC27-28 Width"	Width is edited only for vessel type "C" or "T". Total Width cannot exceed chamber width.
draft feet+	Must be numeric and cannot exceed maximum draft supplied by district in the parameter file	"CC30-31 Draft-Feet"	The draft is only checked for vessel types "C" or "T".
draft inches+	Must be numeric and cannot exceed maximum draft supplied by district in the parameter file	"CC32-33 Draft-Inch"	The draft is only checked for vessel types "C" or "T".
no. loaded barges	Must be numeric and cannot be more than total barges	"CC34-35 BGS Loaded"	Along with number of empty barges, used to calculate total barges. Should agree with number of barge sets reported
no. empty barges	Must be numeric and cannot be more than total barges	"CC36-37 BGS Loaded"	Along with number of empty barges, used to calculate total barges. Should agree with number of barge sets reported
stop code	Must be Y or N	"CC38-38 Stop Code"	
special assist 1	Must be O,A thru L or Z	"CC39-39 Vessel Asst"	
special assist 2	Must be O,A thru L or Z	"CC40-40 Vessel Asst"	
no. passengers	Must be numeric	"CC41-44 Numb Pass"	Passengers are those on commercial passenger boats or ferries

Card 3 - Vessel Log and Stall Information

Field	Probable Cause	Error Message	Remarks
STALL:			Recorded on vessel log with first affected vessel or first vessel using lock after stall; if more than one stall occurs during a lockage, record as one stall and adjust all affected times; a stall cannot coincide with the start and end of any event; beginning of stall and arrival times can be the same; for correct lock utilization figures, when stall overlaps months insert a dummy recreational lockage at the end of the month, and start a new stall in the next month.
mo. begin stall	Must be numeric	"CC45-46 Begin Month"	
day begin stall	Must be numeric	"CC47-48 Begin Day"	
time begin stall	Must be numeric	"CC49-52 Begin Time"	
month end stall	Must be numeric	"CC53-54 End Month"	
day end stall	Must be numeric	"CC55-56 End Day"	
time end stall	Must be numeric	"CC57-60 End Time"	
stall code	Must be A,B,C,D,E,H,I,J,K,L,M, Q,R,S,T,V,W,X,or Z	"CC61-61 Stall Code"	
Card 4 - Vessel Log+			
		"Illegal Card Type"	Cannot use Card 4 if lockage log type is L, long form, in parameter file. There are a maximum of 22 barge sets.
type barge (set 1)	Must be R,J,S,I,B,M,C,T,Z,A or X	"CC17-17 Barge Type"	
no. barge (set 1)	Must be numeric if short form is used and number barges must be 99 or less.	"CC18-19 Numb. Barge"	

Card 4 - Vessel Log

Field	Probable Cause	Error Message	Remarks
commodity (set 1)	Must be 1,10,11,20 thru 26,30 thru 46,50 thru 55,60,61,62 70,80 thru 99	"CC20-21 Commod Code"	If commodity code is 01, tonnage must equal zero. Otherwise the tonnage must be greater than zero.
tonnage (set 1)	Must be numeric	"CC22-26 Total-Tons"	Total tonnage for a given barge type cannot exceed maximum for that type; if total tonnage is 0000, commodity must is 01.

These fields are repeated, 5 barge sets per card type four, in columns 17-26, 28-37, 39-48, 50, 59 and 61-70, until all barges have been defined or the maximum of 22 sets has been reached.

Card 5 - Detail Vessel Log

		"Illegal Card Type"	Cannot use Card 5 if lockage log = S, short form, in parameter file. There are a maximum of 22 barges.
barge no. (1)		"CC16-22 Barge Number"	
barge type (1)	Must be R,J,S,I,B,M,C,T,Z,A or X	"CC23-23 Barge Type"	
commodity (1)	Must be 01,10,11,20 thru 26, 30 thru 46,50 thru 55,60,61,62 70,71,80 thru 99	"CC24-25 Commod Code"	
hazard code (1)			
tonnage (1)	Must be numberic	"CC27-31 Tons Cargo"	See comments for commodity and tonnage on Card 4.

These fields are repeated, 4 barges per card type five, in columns 16-31, 32-47, 48-63 and 64-79 until all barges have been defined or the maximum of 22 has been reached.

Card 6 - Detail Vessel Log

Vessel Number	Must be numeric and not zero	Light Boat information from 3102D up to a maximum of six light boats.

CALCULATED FIELDS: Data for the following items, the calculated variable, is computed from information supplied on the input data. These errors can be corrected only by correcting the input fields used to compute them.

Card 6 - Detail Vessel Log

Field	Probable Cause	Error Message	Remarks
Idle time		"******IDLE TIME******"	Time lock is available; computed from last end of lockage (EOL) to next arrival time
Wait time+	Cannot exceed maximum wait in parameter file	"******WAIT TIME******"	Arrival time to start of lockage (SOL)
Approach time 1+	Must be between minimum and maximum approach times in parameter file	"**1st APPROACH TIME**"	First cut start of lockage (SOL1) to Bow over lock sill (BOS1)
Entry time 1+	Must be between minimun and maximum times for entry type in parameter file	"***1st ENTRY TIME**"	First cut bow over lock sill (BOS1) to end of entry (EOE1)
Chamber time 1+	Must be between minimum and maximum times for chambering type in parameter file	"**1st CHAMBER TIME**"	First cut end of entry (EOE1) to start of exist (SOE1)
Exit time 1+	Must be between minimum and maximum times for exit type in parameter file	"****1st EXIT TIME****"	First cut start of exist (SOE1) to end of lockage (EOL1)
Approach time 2+	If the number of cuts is greater than or equal to 2, SOL2, BOS2, EOE2, SOE2 and EOL2 must not equal spaces See comments for Approach Time 1.	*2nd APPROACH TIME*	When number cuts are more than 1 record time for last cut. Second cut start of lockage (SOL2) to bow over lock sill (BOS2)
Entry time 2+	See comments for Entry time 1.	**2nd ENTRY TIME**	Second cut bow over lock sill (BOS2) to end of entry (EOE2)
Chamber time 2+	See comments for Chamber time 1.	*2nd CHAMBER TIME*	Second cut end of entry (EOE2) to start of exit (SOE2)
Exit time 2+	See comments for Exit time 1.	***2nd EXIT TIME***	Second cut start of exit (SOE2) to end of lockage (EOL2)
		Time Between Cuts ***Turnback Time***	
Error Messages		"Lock and Chamber Parameter Card Missing"	Check run deck for error

Appendix F

Valid District EROC Codes

Appendix F

EROC	DISTRICT NAME	DIVISION NAME
B1	Memphis District	Lower Miss Valley Div
B2	New Orleans District	Lower Miss Valley Div
B3	St. Louis District	Lower Miss Valley Div
B4	Vicksburg District	Lower Miss Valley Div
C1	Kansas City District	Missouri River Div
C2	Omaha District	Missouri River Div
D0	Division Office, NED	New England Div
E0	Division Office, NAD	North Atlantic Div
E1	Baltimore District	North Atlantic Div
E2	New England District	North Atlantic Div
E3	New York District	North Atlantic Div
E4	Norfolk District	North Atlantic Div
E5	Philadelphia District	North Atlantic Div
F0	Division Office, NCD	North Central Div
F1	Buffalo District	North Central Div
F2	Chicago District	North Central Div
F3	Detroit District	North Central Div
F4	Rock Island District	North Central Div
F5	St. Paul District	North Central Div
FB	Constr Engr Res Lab	Const Engr Res Lab
G1	Alaska District	North Pacific Div
G2	Portland District	North Pacific Div
G3	Seattle District	North Pacific Div
G4	Walla Walla District	North Pacific Div
H0	Division Office, ORD	Ohio River Div
H1	Huntington District	Ohio River Div
H2	Louisville District	Ohio River Div
H3	Nashville District	Ohio River Div
H4	Pittsburg District	Ohio River Div
J0	Division Office, POD	Pacific Ocean Div
K0	Division Office, SAD	South Atlantic Div
K2	Charleston District	South Atlantic Div
K3	Jacksonville District	South Atlantic Div
K5	Mobile District	South Atlantic Div
K6	Savannah District	South Atlantic Div
K7	Wilmington District	South Atlantic Div
L1	Los Angeles District	South Pacific Div
L2	Sacramento District	South Pacific Div
L3	San Francisco District	South Pacific Div
M1	Albuquerque District	Southwestern Div
M2	Fort Worth District	Southwestern Div
M3	Galveston District	Southwestern Div
M4	Little Rock District	Southwestern Div
M5	Tulsa District	Southwestern Div
P0	Middle East Div	Middle East Div
P5	Engr Auto Supp Activity	Engr Auto Supp Activity

EROC	DISTRICT NAME	DIVISION NAME
R0	Waterway Exp Station	Waterway Exp Station
R1	Coastal Engr Res Center	Coastal Engr Res Center
R2	Board of Engrs for R&H	Board of Engrs for R&H
R3	Cold Regions Res Eng Lab	Cold Regions Res Eng Lab
R9	Water Rsrce Supp Center	Water Rsrce Supp Center
S0	OCE Baltimore	OCE Baltimore
Z1	Appalachin Reg Comm	Appalachin Reg Comm
Z4	Unapportioned (Unreserve)	OCE - Acct # 931
Z5	Unalloted Apportionment	OCE - Acct # 932
Z6	National Park Service	National Park Service
Z7	Transportation Dept	Transportation Dept

Appendix G

PMS Control and Option Commands

PMS CONTROL AND OPTION COMMANDS

1. Batch Submission

The control cards for running the PMS programs are a combination of CDC job control language and english-like user supplied parameter cards. All cards begin in card column one and must be punched exactly as seen below.

Card	Remarks
PMSJOB,T0120,CM200000,P3.[1,2,3]	The job card sets the priority, core and time limits for the job. In this example, the core size is 200000 decimal words. The priority is 3 and the time is 120 units.
USER,XXXXXX,YYYYYY,KOE[1,2,3]	The user card identifies the user number XXXXXX, the password, YYYYYY, and the family. The XXXXXX is user number, the YYYYYY is password.
CHARGE,WWWWWWW,PPP[1,2,3]	The charge card identifies the charge number, WWWWWWW, and the project name, PPP.
GET,GENFILE/UN=CEW2PD[1,2,3]	This makes the JCL generating program and two necessary data files for execution "local."
GENFILE[1,2,3]	Causes the loading and execution of GENJCL and creates as output a local file called PMSEXEC. This local JCL file is automatically passed to the batch processor for execution with the day file for direction to the user's high-speed printer. Query dayfile for job name of report.
END OF RECORD[1,2,3]	This is the end of record mark; the appropriate format must be selected as follows: 7/8/9 multipunch or /EOR (precede PMSJOB card with /JOB card) or issue "WEOR" XEDIT command to put in EOR at terminal.

1 JCL
2 Edit Run
3 Report Run

Card	Remarks
USER,XXXXXX,YYYYYY,KOE.[2,3]	This is the first of the user supplied parameter cards. This card supplies the user name and password to the system. The XXXXXX represents the account, the YYYYYY the password for the report run to be created and submitted. This is a mandatory card.
CHARGE,WWWWWWW,PPP.[2'3]	This second user supplied parameter card is also mandatory. This card supplies the system with the charge number and project name for billing. WWWWWWW represents the user's charge number and the PPP represents the appropriate project name.
CURRENT MONTH IS MMYY[2,3]	This also is a mandatory card. When used with reports, it supplies a date for the "SELECT DATA" card if that card is invalid or missing.
DISTRICT XX district name[2'3]	The last of the mandatory cards, this entry supplies the EROC code and supplies a default district for the reports in the event of an invalid or missing "SELECT DATA" card. The XX is to be replaced by the proper EROC code.
TIME LIMIT NNNN[2'3]	Modifies the default time limit of 0120 units. This option should be used with reports 17, 18, 19, 21 at all times or with any report processing large volumes of data. The N's may be replaced by any 4 digits; check maximum allowed on your CDC account.
INCREASE MEMORY TO ZZZZZZ[2,3]	Where ZZZZZZ is the amount of memory, the default is 200000 which is enough for most runs.
RUN STACK WITH PRIORITY N[2,3]	This card alters the priority of the job to be run. The priorities are 6, 4, 3, 2, 1 respectively, with 3 as the default. Six is the highest priority job.

1 JCL
2 Edit Run
3 Report Run

Card	Remarks
DIRECT OUTPUT TO OUR BULK TERMINAL (COPE ETC) USER ID:AAAAAA[2,3]	This option is used to send printed or punched output to a user name other than the account the job was run from. Typically this account is the RJE account for the district desiring the report. The AAAAAA is replaced with the desired user number (e.g., CEW2RJ).
NO INFORM[2,3]	Suppresses printing of the messages file.
DO NOT PUNCH ERROR CARDS[2]	For the edit/update, this option suppresses default card punching at users site of transactions found to be in error. This card must be used if the job is processed with the UT200 protocol.
BACKUP 1 CYCLE BEFORE STARTING EDIT[2]	For the edit/update, this card allows user to go back one iteration of a current months data for processing. It is to be used where inadvertent damage to the master may be repaired by going to the previous good version, the backup.
RESTART THE MONTH WITH THE CURRENT TRANSACTIONS AS THE INITIAL MASTER FILE[2]	For the edit/update, this card is to be used in the event the current master is hopelessly wrong and starting anew from the beginning is the easiest solution. Beware! Use of the option destroys all previous master and backup files.
DO NOT LIST ERROR CARDS[2]	For the edit/update, this option suppresses default printing of card images for transactions found to be in error at the user's site.
ADDITIONAL TRANSACTIONS ARE LOCATED IN FILE FFFFFF[2]	This option allows a user-created card image disk file to be used as input to the edit/update. The "F's" are to be replaced with the appropriate file name.

1 JCL
2 Edit Run
3 Report Run

Card	Remarks
IGNORE OLD ERROR FILE[2]	In the edit/update, when corrections to the master file are not to be made through the error file, this option must be used to prevent the uncorrected data on the error file from updating the master.
GIVE LIST OF ALL INPUT CARDS SUBMITTED IN THIS UPDATE[2]	This option generates a listing, sorted by lock and record number, of all cards submitted in an update.
ALL COAST GUARD[2]	Allows access to expanded Coast Guard file with all vessel types for reports 16, 17, 17B, 18, 19, 20. Default is Coast Guard file with tows only.
EXTRACTED OUTPUT FILE IS FFFFFFF[3]	FFFFFFF is the name of the file where extracted data is to be saved.
REPORT FILE IS FFFFFFF[3]	FFFFFFF is the name of the file the report is saved under.
BYPASS HISTORICAL TAPES[3]	Data is arranged on two tapes, current and historical. The current year and the previous complete calendar year are on the current tape (e.g. current tape = 1983 and 1984). All other data is on a historical tape, GENFILE will get the correct tape based on the year selected except when the calendar year has changed and a district does not have all the previous year's data in the central library. To select the current tape instead of the default historical tape insert this card. Remember, once all of the previous year's data is in the central library you will want the default, current tape, for the current year's data or the previous year. (e.g. The current calendar year is 1957; district Z does not have all 1983 data in central library and so uses "BYPASS" to get 1982 data from current tape; district X has all 1983 data in central library and does not use "BYPASS" card since 1982 data will be

1 JCL
2 Edit Run
3 Report Run

Card	Remarks
	on historical tape). Also, you cannot cross calendar years on a single select card. (i.e. select....1182 to 0283) instead use multiple select cards (i.e. select....1182 to 1282 and select 0183 to 0283).
RUN PROGRAM 501P5P99 VERSION A[2,3]	This card specifies that some specific report be run. It causes the GENJCL program to generate the job control language and parameter cards to execute the appropriate program. The last two digits of the sample (99) should be replaced with the appropriate program number. (See Table G-1)
SELECT DATA FOR XX FROM M1Y1 TO M2Y2[3] or SELECT DATA FOR XX FROM M1Y1 TO M2Y2 for LKC[3]	This card specifies the district and dates of data to be reported. The XX is to be replaced with the appropriate EROC code; M1Y1 is the beginning month and year of the data; M2Y2 is the ending month and year of the data. Using the optional form shown in the second example allows the extraction of data from a single chamber. In most cases, multiple select data cards may be used. The exceptions are PMS 22, 23 and 24. The PMS lock code should replace LK and the chamber code should replace C. Lock and chamber code must both be specified.

1 JCL
2 Edit Run
3 Report Run

2. Interactive Submission

The following information on format and content is in addition to the self-explanatory prompts in the GENINT procedure. Within each prompt is (1) the response format including required punctuation and (2) maximum number of characters permitted for the entry.

1)USERNAME,PASSWORD (CEXXXX,PPPPPP [15])
This is your CDC username and password. If you enter this item incorrectly you will be logged off when the job is submitted.

2)CHARGE NUMBER,PROJECT (CEXXXXX,PPP [23])
This is your CDC charge number and project. This entry has a maximum of twenty-three characters. Depending on the length of your charge number (including the comma), the balance of characters can be used for the project. If this item is entered incorrectly you will be logged off when the job is submitted.

3)CURRENT MONTH AND YEAR (MMYY [4])
This is the present calendar month and year in a numeric format. The months should be entered as 01 to 12. (e.g. 0284, not 284)

4)DISTRICT CODE (XX [2])
This is your district's code. See Appendix F for a list of valid entries.

The next series of prompts require a Y(yes) or N(no) response. Some prompts will query for additional information after a Y response. Any entry other than Y or N will be treated as an N entry.

5)INFORM FILE - A yes will cause the printing of PMS message file (including sample run decks, utilities, upgrades and modifications) along with your other output.

6)EXTRACT DATA ONLY - This option, used with report program numbers XL, XS and XT, allows the data selected to be saved to a file name of your choice under your account. (Be sure not to exceed your CDC username file size limits). This is useful when a district has local programs it wants to execute using PMS data.

7)REPORT SAVED - This option will save any report to a file name of your choosing under your CDC username. You may then download the information to a micro for use with word processing, graphics and spreadsheet software. The report is saved, including headers, just as it would be printed. (Be sure you do not exceed the file size limits on your CDC username.)

8)DIRECT OUTPUT - This sends output to be printed to a username other than the one specified on the user card. It is useful when a district maintains a username for retrieval of remote jobs (RJE). If the username is entered incorrectly, the job will be lost! This is for single copy output.

9)TWO COPIES OF OUTPUT - This option allows the disposition of an additional copy of the report. Enter username where second copy is to be sent. An incorrect username will cause that copy to be lost.

10)INCREASE TIME LIMIT - When large reports or ranges of data are processed, you may need to increase the time limit to avoid losing output with an "Account Block SBU Limit" error. This is a numeric entry. Default is 0120 and the maximum is the limit on your CDC username.

11)BYPASS HISTORICAL TAPES - Data is arranged on two tapes, current and historical. Normally, the current year and the previous complete calendar year are on the "current" tape (e.g. 1983 and 1984) and all other data are on a historical tape. GENINT will get the correct tape based on the year selected except when the calendar year has changed and a district does not have all the previous year's data in the central library. To select the current tape instead of the default historical tape, respond "Y" to the prompt (e.g. current calendar year = 84, but district Z does not have all 1983 data in central library so the current tape for District Z has 82 and 83. Since 82 would normally be on historic tape, it is necessary to tell the program to bypass the historic tape when processing for Z. District X has all 1983 data in Central Library; do not use "Bypass" since 1982 data will be on the historical tape).

12)EXPANDED COAST GUARD FILE - The Coast Guard file is used to supply vessel names, owner names and horsepower for reports 17-21. It is maintained in two versions, "Tows Only" and the expanded version with all vessel types included. Use of the expanded file will increase processing time and costs.

13)PRIORITY (X [1]) - Self-explanatory.

14)REPORT NUMBER (XX [2])
This is the run number or letter pair identifying each report. See table G-1 for listing of reports and their run identifiers.

15)RUN ANOTHER REPORT, SAME RUN - You may process a maximum of 50 reports in one run. Keep in mind, CDC username and system limits, amount of output, and restrictions for some PMS reports.

16)REPORT DISTRICT CODE See Appendix F for list of valid codes.

17)SPECIFIC LOCK & CHAMBER - See Appendix J for list of valid codes. Be sure to include a card for each chamber of the lock.

18)STARTING/ENDING MONTH & YEAR (MMYY [4])
Format is numeric with months from 01 to 12 and year not before 75.

19)ADDITIONAL DATA IN THIS RUN - Respond "Y" to select auxiliary chamber of lock, new lock or different dates. For PMS reports 22, 23, and 24 the response should be "N".

Table G-1

PMS Report Identifiers

Card	Invoked Activity
RUN PROGRAM 501P5P40 VERSION A	Copy files to central library.
RUN PROGRAM 501P5050 VERSION A	Causes the execution of the edit/update program.
RUN PROGRAM 501P5PXL	Causes the extractions of detail lockage data as specified in the "SELECT DATA" card and the replacing of this data as an indirect access file named by the "EXTRACTED OUTPUT FILE" option under the username the job was charged to. The output file is likely to be large.
RUN PROGRAM 501P5PXS	Causes the extraction of summary data as specified in the "SELECT DATA" card and the replacement of this data as an indirect access file named by the "EXTRACTED OUTPUT FILE" option under the username the job was charged to.
RUN PROGRAM 501P5PXT	Causes the extraction of standard data as specified on the "SELECT DATA" card and the replacement of this data as an indirect access file named by the "EXTRACTED OUTPUT FILE" option under the username the job was charged to.
RUN PROGRAM 501P5PLC	Runs Lockop program from central library data
RUN PROGRAM 501P5PLM	Runs Lockop from edit master file on your account
RUN PROGRAM 501P5P54 VERSION A	PMS3E, Lock Analysis Report PMS3F, Lock Analysis Report
RUN PROGRAM 501P5P57 VERSION A	PMS 4, Stall Analysis Report
RUN PROGRAM 501P5P58 VERSION A	PMS 5, Vessel Frequency Analysis Report
RUN PROGRAM 501P5P59 VERSION A	PMS 6, Lock Utilization Analysis Report
RUN PROGRAM 501P5P61 VERSION A	PMS 8, Exceptional Performance Events Report

Card	Invoked Activity
RUN PROGRAM 501P5P62 VERSION A	PMS 10, Execptional Performance Summary Report
RUN PROGRAM 501P5P64 VERSION A	PMS 12, Commodity Barge Type Report
RUN PROGRAM 501P5P65 VERSION A	PMS 13, Arrival Frequency Analysis Report
RUN PROGRAM 501P5P66 VERSION A	PMS 14, Inter-Arrival Distribution Report
RUN PROGRAM 501P5P67 VERSION A	PMS 15, Delay Time Frequency Analysis Report
RUN PROGRAM 501P5P68 VERSION A	PMS 16, Horsepower Frequency Report
RUN PROGRAM 501P5P69 VERSION A*	PMS 17, Tow Transit Analysis Detailed Vessel Report
RUN PROGRAM 501P5P69 VERSION B	PMS 17, Modified to Report Barge Commodity and Tonnage
RUN PROGRAM 501P5P70 VERSION A	PMS 18, Tow Transit Analysis Detailed Lock Report
RUN PROGRAM 501P5P71 VERSION A	PMS 19, Tow Transit Analysis Summary Report
RUN PROGRAM 501P5P72 VERSION A*	PMS 20, Detailed Tow Company Analysis
RUN PROGRAM 501P5P74 VERSION A**	PMS 22, Corps of Engineers Lock Tonnage Report
RUN PROGRAM 501P5P75 VERSION A**	PMS 23, Corps of Engineers Lockage Report
RUN PROGRAM 501P5P76 VERSION A**	PMS 24, Lock Utilization Summary Report
RUN PROGRAM 501P5P77 VERSION A	PMS 25, Lock Performance Summary Report
RUN PROGRAM 501P5P78 VERSION A	PMS 26, Lock Delay Summary Graph
RUN PROGRAM 501P5P79 VERSION A	PMS 27, Lock Service Summary Graph
RUN PROGRAM 501P5P80 VERSION A	PMS 28, Lock Queue Summary Graph
RUN PROGRAM 501P5P81 VERSION A	PMS 29, Tows Processed

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* Must contact PMS Coordinator at EASA to run.
** Will ignore all except first "SELECT DATA" card and ignore "FROM MMYY", extracting all data from 1 January to the "TO MMYY" month and year.

Card	Invoked Activity
RUN PROGRAM 501P5P82 VERSION A	PMS 30, Kilotons Processed
RUN PROGRAM 501P5P83 VERSION A	PMS 31, Percent Utilization
RUN PROGRAM 501P5P84 VERSION A	PMS 32, Total Barges Processed
RUN PROGRAM 501P5P85 VERSION A	PMS 33, Percent Empty Barges Processed
RUN PROGRAM 501P5P86 VERSION A	PMS 34, Total Delay Time
RUN PROGRAM 501P5P87 VERSION A	PMS 35, Average Delay Time
RUN PROGRAM 501P5P88 VERSION A	PMS 36, Barges Per Hour of Tow Process Time
RUN PROGRAM 501P5P89 VERSION A	PMS 37, Tons Per Minute of Tow Processing Time
RUN PROGRAM 501P5P90 VERSION A	PMS 38, Kilotons Per Tow
RUN PROGRAM 501P5P91 VERSION A	PMS 39, Kilotons Per Lockage
RUN PROGRAM 501P5P92 VERSION A	PMS 40, Tows Per Day
RUN PROGRAM 501P5P93 VERSION A	PMS 41, Kilotons Per Day
RUN PROGRAM 501P5P94 VERSION A	PMS 42, Barges Per Day
RUN PROGRAM 501P5P95 VERSION A	PMS 43, Barges Per Tow
RUN PROGRAM 501P5P96 VERSION A	PMS 44, Other Vessels Per Tow Lockage
RUN PROGRAM 501P5P97 VERSION A	PMS 45, Average Processing Time Per Tow

Appendix H

PMS Look-up Tables

RIVER AND LOCK CODES

Lower Mississippi Valley Division (LMVD)

River Name	River Code	District Designation (EROC)	Lock Name	Lock Code	Chamber Code	Type*
Atchafalya River	AT	LMN (B2)	Berwick Lock	11	1	M
Bayou Teche	BT	LMN (B2)	Keystone Lock	31	1	M
Calcasieu River	CA	LMN (B2)	Calcasieu Salt Water Barrier	23	1	C
Freshwater Bayou	FB	LMN (B2)	Freshwater Bayou Lk	41	1	M
Gulf Intracoastal Waterway (GIWW)	GI	LMN (B2)	Port Allen Lock	01	1	M
		LMN (B2)	Bayou Sorrel Lock	02	1	M
		LMN (B2)	Inner Harbor Navigation Canal Lock	03	1	M
		LMN (B2)	Algiers Lock	04	1	M
		LMN (B2)	Harvey Lock	05	1	M
		LMN (B2)	Bayou Boeuf Lock	06	1	M
		LMN (B2)	Leland Bowman			
		LMN (B2)	Vermilion Lock	07	1	M
		LMN (B2)	Calcasieu Lock	08	1	M
		LMN (B2)	Schooner Bayou Control Structure	21	1	C
		LMN (B2)	Catfish Point Control Structure	22	1	C
Kaskaskia River	KS	LMS (B3)	Kaskaskia River Navigation Lock	01	1	M
Mississippi River	MI	LMS (B3)	Chain of Rocks Canal			
		LMS (B3)	Lock & Dam 27	27	1,4	M,A
		LMS (B3)	Lock & Dam 26	26	1,4	M,A
		LMS (B3)	Lock & Dam 25	25	1	M
		LMS (B3)	Lock & Dam 24	24	1	M
Old River	OD	LMN (B2)	Old River Lock	51	1	M
Ouachita and Black Rivers	OB	LMK (B4)	Jonesville Lock & Dam	01	1	M
		LMK (B4)	Columbia Lock & Dam	02	1	M
			Felsenthal	03	1	
			Calion	04	1	
Pearl River	PR	LMK (B4)	Lock No. 1	31	1	M
		LMK (B4)	Lock No. 2	32	1	M
		LMK (B4)	Lock No. 3	33	1	M
Red River	RR	(B4)	Red River L&D 1	41	1	

*The following designations are used:

M - Main chamber
A - Auxiliary chamber
T - Temporay Lock
C - Control Structur

RIVER AND LOCK CODES

North Atlantic Division (NAD)

River Name	River Code	District Designation (EROC)	Lock Name	Lock Code	Chamber Code	Chamber Type
Atlantic Intercoastal Waterway	AI	NAO (E4)	Albemarle & Chesapeake Canal Great Bridge Lock	11	1	M
Dismal Swamp Canal Route	DS	NAO (E4)	Deep Creek Lock	01	1	M
		NAO (E4)	South Mills Lock	02	1	M
Hudson River	HU	NAN (E3)	Troy Lock & Dam	01	1	M

RIVER AND LOCK CODES

North Central Division(NCD)

River Name	River Code	District Designation (EROC)	Lock Name	Lock Code	Chamber Code	Type
Black Rock Channel & Tonawanda Harbor	BR	NCB (F1)	Black Rock Lock	01	1	M
Fox River	FX	NCE (F3)	De Pere Lock & Dam	11	1	M
		NCE (F3)	Little Kaukauna Lock & Dam	12	1	M
		NCE (F3)	Rapide Croche Lock & Dam	13	1	M
		NCE (F3)	Kaukauna Guard Lock	20	1	M
		NCE (F3)	Kaukauna Lock 1	21	1	M
		NCE (F3)	Kaukauna Lock 2	22	1	M
		NCE (F3)	Kaukauna Lock 3	23	1	M
		NCE (F3)	Kaukauna Lock 4	24	1	M
		NCE (F3)	Kaukauna Lock 5	25	1	M
		NCE (F3)	Little Chute Guard Lock	31	1	M
		NCE (F3)	Little Chute Lock 2	32	1	M
		NCE (F3)	Little Chute Combined Locks Upper	33	1	M
		NCE (F3)	Little Chute Combined Locks - Lower	34	1	M
		NCE (F3)	Cedars Lock & Dam	35	1	M
		NCE (F3)	Appleton Lock 1	41	1	M
		NCE (F3)	Appleton Lock 2	42	1	M
		NCE (F3)	Appleton Lock 3	43	1	M
		NCE (F3)	Appleton Lock 4	44	1	M
		NCE (F3)	Menasha Lock & Dam	51	1	M
Illinois Waterway	IL	NCR (F4)	Thomas J. O'Brien Lock	01	1	M
		NCR (F4)	Lockport Lock	02	1	M
		NCR (F4)	Brandon Road Lock & Dam	03	1	M
		NCR (F4)	Dresden Island Lock & Dam	04	1	M
		NCR (F4)	Marseilles Lock & Dam	05	1	M
		NCR (F4)	Starved Rock Lock & Dam	06	1	M

RIVER AND LOCK CODES

NCD (Continued)

River Name	River Code	District Designation (EROC)	Lock Name	Lock Code	Chamber Code	Chamber Type
Illinois Waterway (Continued)	IL					
		NCR (F4)	Peoria Lock & Dam	07	1	M
		NCR (F4)	LaGrange Lock & Dam	08	1	M
Mississippi River	MI	NCS (F5)	St. Anthony Falls - Upper Lock & Dam	51	1	M
		NCS (F5)	St. Anthony Falls - Lower Lock & Dam	52	1	M
		NCS (F5)	Locks & Dam 1	01	1,2	M,M
		NCS (F5)	Locks & Dam 2	02	1,4	M,A
		NCS (F5)	Locks & Dam 3	03	1	M
		NCS (F5)	Locks & Dam 4	04	1	M
		NCS (F5)	Locks & Dam 5	05	1	M
		NCS (F5)	Locks & Dam 5A	55	1	M
		NCS (F5)	Locks & Dam 6	06	1	M
		NCS (F5)	Locks & Dam 7	07	1	M
		NCS (F5)	Locks & Dam 8	08	1	M
		NCS (F5)	Locks & Dam 9	09	1	M
		NCS (F5)	Locks & Dam 10	10	1	M
		NCR (F4)	Lock & Dam 11	11	1	M
		NCR (F4)	Lock & Dam 12	12	1	M
		NCR (F4)	Lock & Dam 13	13	1	M
		NCR (F4)	Locks & Dam 14	14	1,4	M,A
		NCR (F4)	Locks & Dam 15	15	1,4	M,A
		NCR (F4)	Lock & Dam 16	16	1	M
		NCR (F4)	Lock & Dam 17	17	1	M
		NCR (F4)	Lock & Dam 18	18	1	M
		NCR (F4)	Lock & Dam 19	19	1,4	M,A
		NCR (F4)	Lock & Dam 20	20	1	M
		NCR (F4)	Lock & Dam 21	21	1	M
		NCR (F4)	Lock & Dam 22	22	1	M
St. Marys River	SM	NCE (F3)	Sabin Lock	04	1	M
		NCE (F3)	Davis Lock	03	1	M
		NCE (F3)	New Poe Lock	02	1	M
		NCE (F3)	MacArthur Lock	01	1	M
The Inland Route	IN	NCE (F3)	Alanson Lock	61	1	M

RIVER AND LOCK CODES

North Pacific Division (NPD)

River Name	River Code	District Designation (EROC)	Lock Name	Lock Code	Chamber Code	Type
Columbia River	CO	NPP (G2)	Bonneville Lock & Dam	01	1	M
		NPP (G2)	The Dalles Dam	02	1	M
		NPP (G2)	John Day Lock & Dam	03	1	M
		NPW (G4)	McNary Lock & Dam	04	1	M
Lake Washington Ship Canal	WS	NPS (G3)	Hiram M. Chittenden Locks	01	1,4	M,A
Snake River	SN	NPW (G4)	Ice Harbor Lock & Dam	01	1	M
		NPW (G4)	Lower Monumental Lock & Dam	02	1	M
		NPW (G4)	Little Goose Lock & Dam	03	1	M
		NPW (G4)	Lower Granite Lock & Dam	04	1	M
Willamette River	WI	NPP (G2)	Willamette Falls Locks 1-4	11	1	M
		NPP (G2)	Willamette Falls Guard Lock	15	1	M

RIVER AND LOCK CODES

Ohio River Division (ORD)

River Name	River Code	District Designation (EROC)	Lock Name	Lock Code	Chamber Code	Type
Allegheny River	AG	ORP (H4)	Lock & Dam No. 2	42	1	M
		ORP (H4)	Lock & Dam No. 3	43	1	M
		ORP (H4)	Lock & Dam No. 4	44	1	M
		ORP (H4)	Lock & Dam No. 5	45	1	M
		ORP (H4)	Lock & Dam No. 6	46	1	M
		ORP (H4)	Lock & Dam No. 7	47	1	M
		ORP (H4)	Lock & Dam No. 8	48	1	M
		ORP (H4)	Lock & Dam No. 9	49	1	M
Clinch River	CI	ORN (H3)	Melton Hill Lock & Dam	11	1	M
Cumberland River	CU	ORN (H3)	Barkley Dam & Lake Barkley	21	1	M
		ORN (H3)	Cheatham Lock & Dam	22	1	M
		ORN (H3)	Cordell Hull Lock & Dam	23	1	M
		ORN (H3)	Old Hickory Lock & Dam	24	1	M
Green & Barren Rivers	GB	ORL (H2)	Green River Lock & Dam 1	21	1	M
		ORL (H2)	Green River Lock & Dam 2	22	1	M
Kanawha River	KA	ORH (H1)	Winfield Locks & Dam	01	1,2	M,M
		ORH (H1)	Marmet Locks & Dam	02	1,2	M,M
		ORH (H1)	London Lock & Dam	03	1,2	M,M
Kentucky River	KY	ORL (H2)	Lock & Dam 1	01		
		ORL (H2)	Lock & Dam 2	02		
		ORL (H2)	Lock & Dam 3	03		
		ORL (H2)	Lock & Dam 4	04		
		ORL (H2)	Lock & Dam 5	05		
		ORL (H2)	Lock & Dam 6	06		
		ORL (H2)	Lock & Dam 7	07		
		ORL (H2)	Lock & Dam 8	08		
		ORL (H2)	Lock & Dam 9	09		
		ORL (H2)	Lock & Dam 10	10		
		ORL (H2)	Lock & Dam 11	11		

RIVER AND LOCK CODES

ORD (Continued)

River Name	River Code	District Designation (EROC)	Lock Name	Lock Code	Chamber Code	Type
		ORL (H2)	Lock & Dam 12	12		
		ORL (H2)	Lock & Dam 13	13		
		ORL (H2)	Lock & Dam 14	14		
Monongahela River	MN	ORP (H4)	Locks & Dam 2	22	2,4	M,A
		ORP (H4)	Locks & Dam 3	23	1,4	M,A
		ORP (H4)	Locks & Dam 4	24	1,4	M,A
		ORP (H4)	Maxwell Locks & Dam	25	1,2	M,A
		ORP (H4)	Lock & Dam 7	27	1	M
		ORP (H4)	Lock & Dam 8	28	1	M
		ORP (H4)	Morgantown Lock & Dam	29	1	M
		ORP (H4)	Hildebrand Lock & Dam	30	1	M
		ORP (H4)	Opekiska Lock & Dam	31	1	M
Ohio River	OH	ORP (H4)	Emsworth Locks & Dam	01	1,4	M,A
		ORP (H4)	Dashields Locks & Dam	02	1,4	M,A
		ORP (H4)	Montgomery Locks & Dam	03	1,4	M,A
		ORP (H4)	New Cumberland Locks & Dam	04	1,4	M,A
		ORP (H4)	Pike Island Locks & Dam	05	1,4	M,A
		ORP (H4)	Hannibal Locks & Dam	71	1,4	M,A
		ORH (H1)	Willow Island Locks	72	2,4	M,A
		ORH (H1)	Belleville Locks & Dam	21	1,4	M,A
		ORH (H1)	Racine Locks & Dam	22	1,4	M,A
		ORH (H1)	Gallipolis Locks & Dam	23	1,5	M,A
		ORH (H1)	Greenup Locks & Dam	24	2,4	M,A
		ORH (H1)	Capt. Anthony Meldahl Locks & Dam	25	2,4	M,A
		ORL (H2)	Markland Locks & Dam	41	2,4	M,A
		ORL (H2)	McAlpine Locks & Dam	42	2,4	M,A

RIVER AND LOCK CODES

ORD (Continued)

River Name	River Code	District Designation	(EROC)	Lock Name	Lock Code	Chamber Code	Chamber Type
		ORL (H2)		Cannelton Locks & Dam	75	2,4	M,A
		ORL (H2)		Newburgh Locks & Dam	76	2,4	M,A
		ORL (H2)		Uniontown Locks & Dam	77	2,4	M,A
		ORL (H2)		Smithland Locks & Dam	78	1,2	M,A
		ORL (H2)		Locks & Dam 52	52	1,5	M,A
Tennessee River	TN	ORN (H3)		Kentucky Lock & Dam	01	1	M
		ORN (H3)		Pickwick Landing Lock & Dam	02	1	M
		ORN (H3)		Wilson Locks & Dam	03	2,4	M,A
		ORN (H3)		General Joseph Wheeler Locks & Dam	04	1,5	M,A
		ORN (H3)		Guntersville Locks & Dam	05	1,5	M,A
		ORN (H3)		Nickajac Locks & Dam	06	1	M
		ORN (H3)		Chickamauga Lock & Dam	07	1	M
		ORN (H3)		Watts Bar Lock & Dam	08	1	M
		ORN (H3)		Fort Loudon Lock & Dam	09	1	M

RIVER AND LOCK CODES

South Atlantic Division (SAD)

River Name	River Code	District Designation (EROC)	Lock Name	Lock Code	Chamber Code	Chamber Type
Alabama-Coosa Rivers	AL	SAM (K5)	Claiborne Lock & Dam	11	1	M
		SAM (K5)	Millers Ferry Lock & Dam	12	1	M
		SAM (K5)	Jones Bluff Lock & Dam	13	1	M
Apalachicola, Chattahoochee and Flint Rivers	AP	SAM (K5)	Jim Woodruff Lock & Dam	21	1	M
		SAM (K5)	George W. Andrews Lock & Dam	22	1	M
		SAM (K5)	Walter F. George Lock & Dam	23	1	M
Black Warrior & Tombigee Rivers	BW	SAM (K5)	Coffeeville Lock	01	1	M
		SAM (K5)	Demopolis Lock & Dam	02	1	M
		SAM (K5)	Warrior Lock & Dam	03	1	M
		SAM (K5)	William Bacon Oliver Lock & Dam	04	1	M
		SAM (K5)	Holt Lock & Dam	05	1	M
		SAM (K5)	John Hollis Bankhead Lock & Dam	06	1	M
Canaveral Harbor	CN	SAJ (K3)	Canaveral Lock	21	1	M
Cape Fear River	FR	SAW (K7)	Lock & Dam No. 1	01	1	M
		SAW (K7)	Lock & Dam No. 2	02	1	M
		SAW (K7)	William O. Huske Lock & Dam	03	1	M
Cross Florida Barge Canal	CF	SAJ (K3)	Henry Holland Buckman Lock	11	1	M
		SAJ (K3)	Eureka Lock	12	1	M
		SAJ (K3)	Inglis Lock	13	1	M
Okeechobee Water-way	OK	SAJ (K3)	St. Lucie Lock & Dam	01	1	M
		SAJ (K3)	Port Mayaca Lock	05	1	M
		SAJ (K3)	Moore Haven Lock	02	1	M
		SAJ (K3)	Ortona Lock & Dam	03	1	M
		SAJ (K3)	W.P. Franklin Lock and Control Structure	04	1	M

RIVER AND LOCK CODES

SAD (Continued)

River Name	River Code	District Designation (EROC)	Lock Name	Lock Code	Chamber Code	Type
Savannah River	SV	SAS (K6)	New Savannah Bluff Lock & Dam	01	1	M
Tennessee Tombigbee Waterway	TT	SAM (K5)	Gainesville Lock & Dam	41	1	M
		SAM (K5)	Aliceville Lock & Dam	42	1	M
		SAM (K5)	Columbus Lock & Dam	43	1	M
		SAM (K5)	Aberdeen Lock	44	1	M
			Lock A	45	1	M
			Lock B	46	1	M
			Lock C	47	1	M
			Lock D	48	1	M
			Lock E	49	1	M
			Bay Springs	50	1	M

RIVER AND LOCK CODES

South Pacific Division (SPD)

River Name	River Code	District Designation (EROC)	Lock Name	Lock Code	Chamber Code	Chamber Type
Sacramento River Deep Water Ship Channel	SA	SPK (L2)	Barge Canal Lock	01	1	M

RIVER AND LOCK CODES

South West Division (SWD)

River Name	River Code	District Designation (EROC)	Lock Name	Lock Code	Chamber Code	Type
Gulf Intracoastal Waterway	GI	SWG (M3)	Colorado River East Lock	11	1	M
		SWG (M3)	Colorado River West Lock	12	1	M
		SWG (M3)	Brazos East Gate	13	1	C
		SWG (M3)	Brazos West Gate	14	1	C
McClellan-Kerr Arkansas River Navigation System	MK	SWL (M4)	Norrell Lock & Dam	01	1	M
		SWL (M4)	Lock & Dam 2	02	1	M
		SWL (M4)	Lock & Dam 3	03	1	M
		SWL (M4)	Lock & Dam 4	04	1	M
		SWL (M4)	Lock & Dam 5	05	1	M
		SWL (M4)	David D. Terry Lock & Dam	06	1	M
		SWL (M4)	Murray Lock & Dam	07	1	M
		SWL (M4)	Toad Suck Ferry Lock & Dam	08	1	M
		SWL (M4)	Lock & Dam 9	09	1	M
		SWL (M4)	Dardanelle Lock & Dam	10	1	M
		SWL (M4)	Ozark Lock & Dam	11	1	M
		SWL (M4)	Lock & Dam 13	13	1	M
		SWT (M5)	W.D. Mayo Lock & Dam	21	1	M
		SWT (M5)	Robert S. Kerr Lock & Dam & Reservoir	22	1	M
		SWT (M5)	Webbers Falls Lock & Dam	23	1	M
		SWT (M5)	Chouteau Lock & Dam	24	1	M
		SWT (M5)	Newt Graham Lock & Dam	25	1	M

Time Zone

Code	Symbol	Timezone
1	EST	Eastern Standard Time
2	CST	Central Standard Time
3	PST	Pacific Standard Time
4	EDT	Eastern Daylight Savings Time
5	CDT	Central Daylight Savings Time
6	PDT	Pacific Daylight Savings Time

Shift Number

Number	Time Period for this Shift*
1	0801-1600
2	1601-2400
3	0001-0800

WIND CODES

Direction

Code	Direction
0	None
1	N (North)
2	NE (Northeast)
3	E (East)
4	SE (Southeast)
5	S (South)
6	SW (Southwest)
7	W (West)
8	NW (Northwest)
9	Variable

Velocity

Shift Log	(MPH)	Description
0	0	None
1	1-12	Light
3	13-32	Moderate
5	33-56	Gale
7	57	Storm

*Dafault times; actual times may be different and are as recorded in the parameter file.

CURRENT

Code	Description
0	Normal
1	Outdraft
2	Backlash (Eddy)
3	Flood (rising)
4	Flood (crest)
5	Flood (falling)
6	Flow-in
7	Flow-out
8	Low water
9	Other - Indicate in remarks box or on reverse side of log

WEATHER CONDITION

Condition

Code	Description
0	Clear
1	Fog
2	Rain
3	Hail
4	Freezing Rain
5	Sleet
6	Snow
9	Other - Place remarks on reverse side or Report

Severity

Code	Description
0	Clear
1	Slight
2	Moderate
3	Intense

SURFACE CONDITION

Condition

Code	Description
0	Clear
1	Ice
2	Debris
9	Other - indicate in remarks box or on reverse side of log

Severity

Code	Description
0	Clear
1	Slight
2	Moderate
3	Intense

CUTS

Code	Description
1	Single (one cut to serve the tow)
2	Double (two cuts)
3	Triple (three cuts)
4	Quadruple (four cuts)

If more than four (4) cuts are required, record the number of cuts in the two boxes supplied following the check box for quadruple cuts.

DIRECTIONALITY

At most lock structures it is readily apparent at which end of the lock is the upper pool or lower pool. Hence it is easy to designate whether vessels are going up river or down river.

At some structures, however (e.g., tidal locks and gates) the direction and the pools are ambiguous or changeable. The following structures, therefore, have their direction and pool designation arbitrarily assigned:

District Designation	Structure	Upper Pool	Lower Pool
LMN	Bayou Boeuf Lock	East or North	West or South
	Calcasieu Lock	East or North	West or South
	Freshwater Bayou Lock	East or North	West or South
	Vermilion Lock	East or North	West or South
	Bayou Sorrell Lock	East or North	West or South
	Schooner Bayou Control Structure	East or North	West or South
	Catfish Point Control Structure	East or North	West or South
	Calcasieu Salt Water Barrier	East or North	West or South
SWG	Colorado River East Lock	East or North	West or South
	Colorado River West Lock	East or North	West or South
	Brazos East Gate	East or North	West or South
	Brazos West Gate	East or North	West or South

DIRECTION CODES

Code	Description
1	Up
2	Down

LOCKAGE CODES (AS REPORTED ON INPUT FORMS)

Code	Description
S	Straight lockage
V	Setover
K	Knockout

J	Jacknife lockage
M	Multivessel lockage
F	Fast Double lockage
P	Navigable Pass lockage
D	Open Pass lockage
T	Barge Transfer lockage
Z	Other lockage
	Explain in the remarks section of the form.

LOCKAGE CODES (AS CONVERTED BY EDIT)

TYPE OF LOCKAGE	CODE
Straight	1
Double Cut, first Cut	2
Multi-cut, first cut	3
Setover	4
Knockout	5
Jacknife	6
Multi-Vessel	7
Navigable pass	8
Open pass	9
Fast double	10
Barge Transfer	11
Other	12
Double cut, second cut	13
Multi-cut, last cut	14

Vessel Assist Codes

CODE	DESCRIPTION
O	None- the vesel was not assisted
A	Tow equipped with bow thrusters
B	Switchboat (SB) assisted tow on entry
C	Switchboat (SB) assisted tow on exit
D	Switchboat (SB) assisted tow on entry and exit and locked through
E	Switchboat (SB) assisted tow on entry only and locked through
F	Switchboat (SB) locked through and assisted tow on exit only
G	Separate switchboat (SB) assisted tow on entry and exit
H	Separate switchboat (SB) assisted tow to secure on wall prior to entry
I	Tow equipped with bow trhusters in addition to being assisted by switchboat.
J	Tow haulage equipment such as a winch or kevel assisted the tow in its lockage

K	Hydraulic assist was used to assist the vessel. This consists of opening the lock valves to assist a downbound tow. This procedure is sometimes used to assist "Fast Doubles" and can only be used where authorized.
L	Extra personnel were used to assist the vessel. These may either be lock operators or vessel personnel who would not ordinarily be assisting the vessel.
Z	Some other form of assistance was provided. If this occurs, please describe this assistance in the remarks section of this form.

Vessel Type

Code	Description
T	Commercial towboats
P	Passenger boats and ferries
R	Recreational vessels
C	Cargo carrying vessels
G	U.S. Government vessels
U	U.S. Government contractor's vessels
F	Commercial fishing charter vessels
Z	Other (vessels not otherwise classified) please specify in remarks box or on reverse side of Lockage Log
L	Lightboat

Barge Type

Type	Name	Tons	Tons	Dimensions
R	Small regular barge	1500	3000	175 x 26
J	Regular, Long jumbo barge	2400	5000	175 - 200 x 35
S	Super jumbo barge	4200	20000	280 x 50
B	Seabee or Lash	1000	3000	all sizes
M	Motorized barge			all sizes
C	Bulk Cargo Vessels (self-propelled)			all sizes
T	Bulk Tanker Vessels (self-propelled)			all sizes
I	Integrated			all sizes
Z	Other (describe in Remarks)			all sizes

Stall or Interference Code

Condition	Code	Description
Weather Conditions	A	Fog
	B	Rain
	C	Sleet or Hail
	D	Snow
	E	Wind
Surface Conditions	H	Ice
	I	River Current or Outdraft Condition
	J	Flood
Tow Conditions	K	Interference by other vessels
	L	Tow Malfunction or Breakdown
	M	Tow staff occupied with other duties
Lock Conditions	Q	Debris in lock recesses or in lock chamber
	R	Lock hardware
	S	Lock Staff occupied with other duties
	T	Testing or maintaining lock or lock equipment
Other Conditions	V	Tow detained by Coast Guard and/or Corps
	W	Collision or accident
	X	Vehicular or railway bridge delay
	Z	Other. Please describe in the remarks box or on the reverse side of Lockage Log.

COMMODITY CODES

Code	Description
01	EMPTY BARGES
10	COAL
11	Coal & Lignite
20	PETROLEUM & PETROLEUM PRODUCTS*
21	Crude Petroleum
22	Gasoline
23	Jet Fuel & Kerosene
24	Distillate Fuel Oil
25	Residual Fuel Oil
26	Coke (Coal and Petroleum), Petroleum Pitches, Asphalts, Naphtha, and Solvents
30	CHEMICALS & RELATED PRODUCTS*
31	Organic Industrial Chemicals (Crude Products) from Coal Tar, Petroleum, and Natural Gas, Dyes, Organic Pigment, Dyeing and Tanning Materials, Alcohols, Benzene)
32	Synthetics (Plastic Materials, Synthetic Rubber, Synthetic Fiber)
33	Drugs, Soap, Detergent and Cleaning Preparations, Paints, Gum and Wood Chemicals, Radioactive and Associated Materials
34	Inorganic Industrial Chemicals (Sodium Hydroxide)
35	Nitrogenous Chemical Fertilizers (Anhydrous Ammonia)
36	Potassic Chemical Fertilizers
37	Phosphatic Chemical Fertilizers
38	Other Basic Chemicals and Basic Chemical Products
39	Other Fertilizers
40	METALLIC ORES, METAL PRODUCTS (PRIMARY & FABRICATED), WASTE AND SCRAP MATERIALS*
41	Metallic Ores
42	Iron Ore
43	Primary Iron and Steel Products
44	Other Primary Metal Products
45	Fabricated Metal Products
46	Waste and Scrap Materials
50	NON-METALLIC MINERALS, EXCEPT FUELS*
51	Limestone Flux and Calcareous Stone
52	Sand, Gravel and Crushed Rock

COMMODITY CODES (continued)

Code	Description
53	Phosphate Rock
54	Sulphur, Liquid and Dry
55	Salt
60	STONE, CLAY, GLASS & CONCRETE*
61	Building Cement
62	Lime
70	FRESH FISH & OTHER MARINE PRODUCTS*
71	Marine Shells, Unmanuf.
80	FARM PRODUCTS*
81	Corn
82	Wheat
83	Soybeans
84	Oats
85	Barley
86	Rye
87	Flaxseed
88	Flour
89	Vegetable products
90	MISCELLANEOUS PRODUCTS
91	Forest Products
92	Lumber and Wood Products
93	Pulp, Paper, and Allied Products
94	Processed Agricultural Products (including Food and Kindred Products and Tobacco Products)
95	All Manufactured Equipment and Machinery (including Ordinance and accessories, Machinery, Electrical Machinery, Transportation Equipment, Instruments, Photographic and Optical Goods, Watches and Clocks, and Miscellaneous Products of Manufacturing)
99	COMMODITY IS "UNKNOWN" OR CANNOT BE LOCATED ON THIS LIST

* Either not classified within general category or a more detailed classification is unknown.

Appendix I

GLOSSARY OF TERMS

Appendix I

GLOSSARY OF TERMS

Approach Time - Time from start of lockage (SOL) to bow over sill (BOS).

Arrival Time - See Lockage Times.

Assisting Vessel - A light boat which assists a tow during a lockage.

Auxillary Chamber - A secondary chamber used primarily when the main chamber is busy.

Barge Transfer - See Lockage Type (Functional).

Bow Over Sill (BOS) - See Lockage Times.

Cargo Carrying Vessels - A self-propelled, commodity carrying vessel.

Chamber - Each of the one or more structures at a lock used to convey vessels through the lock. (See Auxillary or Main)

Commercial Lockage - See Lockage Type (Purpose).

Commercial Fishing boats - Boats whose function is the catching and carrying of fish for subsequent sale.

Commercial Towboat - Tow moving barges for profit.

Cut - Series of events required to transfer a vessel, or that part of the tow which can be contained by the lock at once, through a lock in a single direction.

Delay Time - See Wait Time.

End of Entry (EOE) - See Lockage Times.

End of Locakge (EOL) - See Lockage Times.

Entry Time - Time from bow over sill (BOS) to end of entry (EOE).

Entry Type - Type of process initiated at a lock chamber before the vessel to be locked enters. The possibilities are:

1. Fly Entry - The lock has been idle and the inbound vessel directly enters the chamber.

2. Exchange Entry - The vessel inbound to the chamber passes a vessel outbound from the chamber.

3. Turnback Entry - The preceding event is a lockage in which no tows were served.

Exit Time - Time from start of exit (SOE) to end of lockage (EOL).

Exit Type - Type of process occurring at a lock chamber after it has completed its lockage. The possibilities are:

1. Fly Exit - The lock will be idle following the departure of the outgoing vessel.

2. Exchange Exit - The vessel outbound from the chamber passes a vessel inbound to the chamber.

3. Turnback Exit - The vessel to be served next is going in the same direction as the outbound vessel and the lock must be turned back with no vessels in the chamber.

Fast Double - See Lockage Type (Functional).

Ferryboat - Boats which transport land vehicles which cannot otherwise cross a body of water.

Flotilla - Tow boat with its barge or barges.

Heavy Tow - A tow boat with barges (Also known as Flotilla, Tow).

Helper Boat - Any boat which helps a tow through the lock.

Interference - An occurrence which slows lock operation during a lockage.

Jackknife - See Lockage Type (Functional).

Knockout - See Lockage Type (Functional).

Light boat - Tow boat with no barge.

Lock - The structure, composed of one or more chambers, which allows vessels to be moved from one level of water to another.

Lockage - The series of events required to transfer a vessel or tow (with all barges) through a lock in a single direction. More than one vessel can be processed during one lockage as can a tow requiring several cycles to be completely processed.

Lockage Times - The time at which each of the following specific events, all necessary to define a lockage, occur:

1. Arrival Time - The time when the vessel is ready to use the lock, whether or not the lock is ready to serve the vessel.

2. Start of Lockage (SOL) - The time when the lock is ready to serve the incoming vessel.

3. Bow Over Sill (BOS) - The time when the bow of the inbound vessel is abreast of the lock gates and it is in a position parallel to the guide wall to enter the lock chamber.

4. End of Entry (EOE) - The earliest of the following two times:

a. The tow or the complete entering cut is secured within the lock and the gates are clear; or

b. The closing of the gates has been initiated.

5. Start of Exit (SOE) - The time when the exit gates are fully in their recesses and the horn has been sounded. If the vessel starts its exit prior to the gates being fully opened, the Start of Exit Time is when the bow of the exiting vessel crosses the gate sill.

6. End of Lockage (EOL) - The time when the lock has completed serving a vessel or cut and can be dedicated to another vessel or cut. These times are recorded for the first and last cuts only when multiple cuts are required to completely process a tow.

Lock Processing Time - See processing time.

Lockage Type (Functional) - Type of process necessary to move a tow or vessels through a lock. They are as follows:

1. Barge Transfer - Barges are placed in the lock chamber by one towboat, removed and continued on their journey with another towboat.

2. Fast Double - The towboat and possibly some of its barges are separated from the remaining barges and are locked through a different chamber from the remaining barges.

3. Jackknife - The tow is rearranged, usually from two barges wide to three, by breaking the face coupling on a least one barge and knockout of the tow.

4. Knockout - The towboat alone is separated from its barges to be set over for service.

5. Multivessel Lockage - More than one commercial vessel or tow is served in a single lockage cycle. A separate Lockage Log and Vessel Log is completed for each vessel served. Only cargo carrying vessels and towboats with barges (tows) are considered in defining multiple lockages, light boats and recreational vessels are not.

6. Navigable Pass - The tow traverses the dam without a lockage.

7. Open pass - The vessel traverses the lock with no lock hardware operation. This may occur at tidal locks.

8. Setover - The towboat and one or more of its barges are separated as a unit from the remaining barges to be "set over" for service.

9. Straight Lockage - The tow is not broken up for lockage.

10. Other - Any type of lockage not defined by one of the above.

Lockage Type (Purpose)

1. Commercial Lockage - Any lockage in which a ferry, lightboat, passenger boat, cargo carrying vessel or heavy tow is processed.

2. Government Lockage - Any lockage serving a government vessel or a vessel under contract to the government.

3. Recreational Lockage - Any lockage in which only recreation vessels are processed.

4. Other Lockage - Any lockage not classified as commercial, government or recreational.

Main Chamber - The chamber, usually the largest, through which most traffic transversing a lock passes.

Mixed Time - Processing time attributed solely to the processing of recreational and light boats when they are processed with commercial vessels or tows.

Multivessel Lockage - See Lockage Type (Functional).

Navigable Pass - See Lockage Type (Functional).

Open Pass - See Lockage Type (Functional).

Passenger Boats - Boats whose primary commercial purpose is the transportation of people.

Prime Mover - The towboat responsible for the flotilla.

Processing Time - Time to completely process a vessel through a lock, from start of lockage (SOL) to end of lockage (EOL). It is composed of the following elements:

1. Lock Processing Time - Time dependent solely on lock operation, from end of entry (EOE) to start of exit (SOE).

2. Vessel Processing Time - Time dependent solely on vessel operation, from start of lockage (SOL) to end of entry (EOE) and from start of exit (SOE) to end of exit (EOE).

Recreational Lockage - See Lockage Type (Purpose).

Recreational Vessels - Vessels which are being operated for sport or pleasure, not profit.

Record Number - A sequential four digit number assigned to each shift and lockage record. Vessel records are assigned the same record number as the lockage record describing their transit.

Setover - See Lockage Type (Functional).

Stall - An occurrence which stops lock operation. A stall which occurs when a lock is idle should be recorded on the next lockage log completed.

Start of Exit (SOE) - See Lockage Times.

Start of Lockage (SOL) - See Lockage Times.

Straight Lockage - See Lockage Type (Functional).

Switchboat - A boat which stays at the lock to assist tows.

Tow - Tow boat with a barge or barges. (Also known as flotilla, Heavy Tow)

Turnback Entry - See Entry Type.

Turnback Exit - See Exit Type.

U.S. Government Vessel - A vessel owned by the United States government or being operated under contract to the government.

Vessel Number - The seven-digit vessel identification number from the Coast Guard Vessel Index File.

Wait Time - The time elapsed from the arrival of a vessel at a lock to the start of its approach to a lock chamber; the time spent in queue awaiting lockage.

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